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UNIVERSITY OF ALBERTA

# BARRIERS TO ACCESS ENCOUNTERED BY WOMEN SEEKING EMPLOYMENT IN NON-TRADITIONAL OCCUPATIONS IN ALBERTA

by

HEIDI GRAUL-FOLLIS

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE

OF MASTER OF EDUCATION

IN

ADULT AND HIGHER EDUCATION

DEPARTMENT OF ADULT, CAREER AND TECHNOLOGY

EDMONTON, ALBERTA

SPRING, 1992

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PERMANENT ADDRESS:

9725 - 83 Avenue

Edmonton, Alberta

Dated: April 23, 1992

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled BARRIERS TO ACCESS ENCOUNTERED BY WOMEN SEEKING EMPLOYMENT IN NON-TRADITIONAL OCCUPATIONS IN ALBERTA submitted by HEIDI GRAUL-FOLLIS in partial fulfillment of the requirements for the degree of MASTER OF EDUCATION in ADULT AND HIGHER EDUCATION.

Supervisor, Dr. C. Preitz

Dr. Jean Young

Dr. Tracey Derwing

Date March 20, 1992. 1992

This thesis is dedicated to my daughter,
Melanie Anne Follis-Friesen

and

to an increased working spirit of understanding
between women and men

ABSTRACT

The purpose of this research study was to examine the barriers encountered by women who seek apprenticeship training in non-traditional trades in Alberta. The study also sought to determine whether or not gender bias exists for those women who pursue apprenticeship training for gainful employment.

The sample population was identified with the assistance of personnel from Apprenticeship and Trade Certification, Alberta Career Development and Employment. Due to the numerous requests from other researchers, Apprenticeship and Trade Certification recommended that this study be collaboratively conducted with another researcher from the University of Calgary.

The sample consisted of 122 female apprentices attending the technical training who were in their first, second, third and fourth year of apprenticeship.

The collaboratively designed instrument involved a four-part questionnaire that identified barriers faced by women who demand work in the trades. Part I probed employment history and personal data and yielded demographic information. Part II inquired about the apprentices' experiences while in the role of apprentice. Part III delved into the technical training and apprenticeship schooling. Part IV investigated 30 barriers to access which women find upon entering the trades. Part IV, comprised of a five-point Likert scale, was sub-categorized into four discrete sections to help identify specific phases which apprentices experience during their training: Entering the Trades, Experiences

on the Job, Possible obstacles Toward Job Completion, and In General. Spaces were left throughout the questionnaire for participants to add open-ended comments.

The study reports that the population was predominantly single, 26 to 30 years of age, self-supporting, with at least a high school education. Only a very small number of these women had child dependents. Childcare facility information or daycare access were mostly non-applicable to this sample.

The study found the majority of the women to be still in their apprenticeship programs; however, more than half the women were not with the employer with whom they had initially contracted.

Encouragement to enter but also to leave the trades came from peers for over two-thirds of the apprentices. A large number felt strongly about encouraging other women to enter the trades. They viewed this choice of work a satisfying and the technical training as a positive source of skills building and practical support of everyday job duties and job performance. Some barriers identified by the research included: absence of female instructors as role models, and the small number of other female classmates (0 to 6 other female apprentices per year, respectively).

Most surveyed women encountered few problems with either transportation or relocation during the technical training phase.

The majority of participants saw apprenticeships as providing women with a sense of accomplishment, job-pride and enhanced self-worth, unlike traditional job pools such as the services sector from which many of the apprentices had emerged. More than half saw their male coworkers

and supervisors as encouraging. While the majority felt neutral about language designations such as "journeyman" being legally applicable to women, access to daycare facilities, maternity leave, access to union information in their trade, and membership to apprenticeship committee meetings, more than half of the women felt communications with other female tradespersons to be desirable.

Summarily, the apprentices of this study viewed the choices of non-traditional work in the trades as being advantageous to women. Yet their open-ended comments revealed apprehensions that uncovered numerous barriers supported by the literature.

ACKNOWLEDGEMENTS

The author wishes to acknowledge and express sincere gratitude and indebtedness to all who contributed toward the successful completion of this study.

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Finally, I am extremely grateful to Joanna Lubberts, my typist and advocate, for her beautiful, exacting work which never varied throughout many revisions.

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Since this study was completed,

the Apprenticeship and Industry Training Act

has received Royal Assent in Alberta.

This Act supercedes the

Manpower Development Act of 1976.

# CHAPTER I

# STATEMENT OF THE PROBLEM

## Overview of the Study

Demographics, such as those obtained from Statistics Canada, show that women make up 52% of the Canadian population. In 1990, women comprised 42% of the labour force and it is projected that women will account for over half the labour force by the 21st century (Success in the Works: A Profile of Canada's Emerging Labour Force, 1989, p. 18).

A 1985 Canadian Conference of First Ministers launched an inquiry into inter-governmental approaches to women's equality in the work force for the purpose of providing ways for women to reach equality in the Canadian economy at both the federal and the provincial levels. Prior to the 1990s, it was found that data collection by gender and target groups was not common. Moreover, data collection by gender is still not routinely carried out by either level of government. When the data are gathered by gender for broad classes of training programs, the information on participation in specific programs is often not sufficiently detailed to permit analyses of women's status in different types of training. Learning barriers such as education and traditional labour market niches

filled by women are still being reported, with the result that significant progress in areas of evaluating bridging and preparatory programs, reviewing admission criteria for courses and reviewing data to evaluate programs in achieving women's equality are still required. Furthermore, there is a need to build evaluation strategies into plans of action in order to improve the status of women.

The question needs to be answered by bona fide research: What are the barriers faced by women who self-select and seek training in non-traditional apprenticeship trades.

## The Problem

The purpose of this study was to identify the barriers encountered by women who seek apprenticeship training in non-traditional trades in Alberta.

Specifically, the research sought to determine, from the research findings and existing literature, whether or not gender bias exists as the most significant contributing factor to the small percentage of women who follow apprenticeship training leading to employment in non-traditional trades.

## Need for the Study

Much rhetoric exists around the question of female participation in non-traditional trade training and the role which gender-biased attitudes have in discouraging women from participating in these programs which lead to a career. Approximately three broad, contextually societal areas for examination became obvious to the writer:

1. Social issues such as human rights which establish a matrix of systemic exclusion to women who choose work designated as non-traditional for women;
2. Economic issues which span various areas, both implicitly and explicitly, in women's lives and in part direct them to make job or career choices which do not follow the stereotype norm; and,
3. Demographic data which focus on the percentages and frequency of women who seek work in "non-traditional" work areas such as the trades.

The growing participation of women in all segments of the labour market and a heightened awareness of employment equity issues have led to serious questions with regard to the small numbers of women participating in the non-traditional trades training in Alberta. With regard to the need to attract more women according to the highs and lows of non-traditional female workers, "noteworthy progress has been made relative to accessibility to non-traditional occupations, but much work needs to be done to assure pleasant and

discrimination-free conditions in the workplace" (Berthelot & Coquatrix, 1989, p. 34). The issue of equity to women in non-traditional trades training helped in establishing a need for this study.

In order to explore the factors that influence female participation in non-traditional work, it was necessary to assess several different stages of career development.

There was a need to examine the literature with regard to why men and women are differentially attracted to an educational program that may lead to an apprenticeship trade. The question on whether women are currently being given enough information and the requisite encouragement and support were they to show interest in vocational preparation and/or trades training needs to be reported.

The currency and relevance of reported experiences and reactions of women in non-traditional trades also established a need for this study. Identification of these areas as they further create barriers which may inhibit a female once she has selected the career route involving apprenticeship training and the encouragement enhancing or inhibiting her career development was seen as a need for this study.

## Assumptions

A major assumption underlying this study was that "real or perceived barriers for women exist when they endeavour to break through the traditionally male-dominated work areas where apprenticeship training occurs" (U.S. Department of Labor, 1980, p. 5). Further, it was assumed that where women do not encounter such barriers *per se*, they enjoy a certain degree of job satisfaction in relation to how they view their status relative to women looking to their future work positions in these non-traditional jobs.

It was also assumed that women selected to participate in this study provided true and accurate responses to statements on the questionnaire that would reflect their opinions. A pilot sampling of such participants was conducted to ensure this.

Another assumption applied to the research was that data reported in the literature were accurately reported and without bias. Exhaustive examination of feminist and adult theory and epistemology was conducted to further ensure bias-free reporting.

## Definitions of Terms

The following definitions are provided for the reader so that a common understanding can be developed between the researcher and the reader.

Apprentice is a term used to describe a worker who is bound by contractual agreement to serve an employer for a specified period of time with a view to learning a craft or trade in which the employer is obligated to instruct the worker.

In general, the contract sets out the minimum number of hours of training required to complete the apprenticeship and outlines wage increases throughout the program on the basis of a graduated minimum scale.

An apprentice follows a program of on-the-job and related classroom and shop training lasting between two and four years and leading to a prescribed level of competence in an occupation which terminates in a Journeyman Certificate.

Apprenticeship programs are usually under the guidance of an advisory committee representing management, labour, and government.

Entry age and educational levels, health standards and training requirements vary with the apprenticed occupation and are frequently specified by provincial legislation.

The average age of an apprentice in Alberta is 27. Credit may be given for previous related experience or training. Normally, the successful completion of eight to twelve years' schooling is required before commencing apprenticeship training. An examination on all phases of training usually terminates the program, and successful

completion results in the receipt of a Journeyman Certificate. Workers who complete an apprenticeship program may be required to obtain licenses or pass certification examinations before being permitted to practise their trade.

Apprentices are classified with the occupations for which they are being trained, but they are not identified by separate occupational titles or definitions as apprentices (Manpower and Immigration, Canadian Classification and Dictionary of Occupations, 1972, p. 5).

The first definition of the term "apprentice" in the Alberta Legislation appeared in The Apprenticeship Act of 1944 of Alberta, meaning:

> A person who is at least 16 years of age who enters into a contract of service in accordance with this Act whereby he is to receive from or through his employer instruction in any designated trade. (Statutes of Alberta, 1944, p. 111)

A subsequent revision of this definition occurred on May 19, 1976, when the provincial Manpower Development Act received Royal Asset. Here, the definition for the term "apprentice" was modified slightly from the Apprenticeship Act, defining a person:

> i) who is at least 16 years of age, and
> ii) enters into a contract of apprenticeship in accordance with Part II (of the Act) under which he is to receive from or through his employer instruction and continues employment based on the amount of work available in a designated trade. (Statutes of Alberta, 1976, Ch. 31)

Apprenticeship is defined as training in occupations which require a wide and diverse range of skills and knowledge, as well as maturity and independence of judgement. Apprenticeship involves planned, day-by-day training on the job and work experience under proper supervision, combined with related technical instruction presented in an institute of technology or public college (U.S. Department of Labor, 1987, p. 1). In terms of this Alberta-based study, apprenticeship is thus defined as a training program strongly tied to the economy whose objectives include provision of skills demanded by industry, by involving representatives of both employees and employers who direct the content and the operation of each trade (Apprenticeship and Industry Training Review Committee, 1988, p. B.1).

Apprenticeable Occupations or Trades are defined as:

1. Occupations customarily learned in a practical way through structured, systematic programs of supervised on-the-job training;

2. Occupations clearly identified and commonly recognized throughout an industry;

3. Occupations involving manual, mechanical, or technical skills and knowledge which require a minimum of 2,000 hours of on-the-job work experience; and

4. Occupations requiring related instruction to supplement the on-the-job training, such instruction given in a classroom, through correspondence courses, self-study, or other means of approved instruction. (U.S. Department of Labor, 1987, p. 5)

In Alberta (1988-89), there were 52 apprenticeable trades. In that fiscal year, there were 1,860 women who participated in the above-mentioned trades. Of that number, 238 were enroled in non-traditional trades. According to Alberta Career Development and Employment, certifiable trades, plus four other workforce categories make up 62.1% of the workforce which represents women. (The other categories include science and technologies, and professional and managerial occupations [Alberta Career Development and Employment, 1988, p. i].)

Non-traditional Occupations are those that challenge traditional ideas about appropriate roles and jobs for women, and myths about their physical and mental capabilities, serious attachment to the labour force, family responsibilities, and need for jobs which pay well as opposed to traditionally female employment options related to home-making skills or supportive, secondary roles (U.S. Department of Labor, 1980, p. 4). In Canada, during the International Decade of Women, lobbying efforts succeeded in obtaining orientation courses in trades and technology in several provinces to assist women to enter what had been identified as employment "non-traditional" for women, and this was defined as those occupations where women's representation was less than 20% (approximately 80% of all occupations)(Braundy, 1988). As Debbie Field's contributing article states:

> Exploring the overall economic picture to help create possibilities for women to move into non-traditional jobs and resultant problems that await women when they enter these jobs employs the following definition: those occupations in which the large majority of workers are male with the normative expectation that this is as it should be. (Field, 1982, p. 220)

Barriers are obstacles which must be overcome prior to achieving a higher rate of participation by women in non-traditional trades. Barriers have been classified in a variety of ways (see Toward a Labour Force Strategy). Barriers may include overt sex discrimination, inadequate preparation, age restrictions, and harassment, to name a few (U.S. Department of Labor, 1980, p. 5).

## Delimitations

This study was delimited in the following ways: to women whose source of employment occurred in those apprenticeship trades defined by themselves and by the definitions applied by Apprenticeship and Trade Certification as being non-traditional; to all such women who were both single without dependents and those who were single parents with children (inclusion of women with child dependents was deemed necessary as 49% of the 53% of women who occupy primary family wage earners were found to be single women), as well as those whose income was a requirement by the family for economic survival and demographically based needs; to women of variant ages who, at the time of the study, were employed in a trade which

was non-traditional and required apprenticeship training; and to the results obtained by the research instruments that were used with those selected to participate in the study.

The data were drawn from and were limited to the province of Alberta. However, generalization to other provinces or territories in Canada may be possible because the central body of the literature emanates from Canadian authors and practitioners.

## Significance of the Study

This study had both practical and theoretical significance. The results of this study may be of interest to individuals concerned with women's issues, individuals involved with adult learners, as well as individuals across Canada who are responsible for training apprentices for their chosen trade, and those who have responsibility to provide direction and leadership to apprenticeship programs and their legislation.

In terms of practical value, this study may have significance in providing insights for those advocates whose interests and/or direct involvement may be that of practitioners, women's networking groups for non-traditional work such as trades, and policy makers committed to institutional adult programs implementation. In addition, practitioners requiring immediate application in the classroom setting and a general theory

base for future course delivery may find currency from the study as they assist women who seek entry into non-traditional trades.

The theoretical significance of the study has been previously described and derives from those theoretical constructs applicable to Adult Education and feminist phenomenology. The results of the study may be useful in determining whether or not women who choose non-traditional trades experience differential success/satisfaction rates depending on the programs completed.

Summarily, the results of the study may have significance in providing to apprenticeship trainers information which can be incorporated into courses taught for the survival/success of women apprentices in non-traditional trades.

## Design of the Study

### Information Sources and Literature Review

This study received part of its support from the following procedural steps: examination of the literature in order to identify:

1. Potential barriers and/or resistance placed by employers, fellow students and/or co-workers on women seeking admittance to training in a non-traditional trade;

2. Potential barriers and/or resistance from employees, apprentices and/or co-workers which women in non-traditional occupations may encounter;
3. Potential barriers and/or resistance that women in non-traditional trades face from subordinate workers within the workplace;
4. Potential barriers and/or resistance that employers and/or instructors may place before women seeking entry into non-traditional trades; and,
5. Influences of outside forces, such as significant others, on how society's influences impact on women selecting either non-traditional training or employment.

This descriptive study was guided by the following sources which informed it: Literature base found spanning the last two decades (1970s and 1980s); available female incumbents presently employed as apprentices in non-traditional trades; and, formal data which were available from staff at Apprenticeship and Trade Certification, Alberta Career Development and Employment.

## Questionnaire Development

From a review of the literature on instrument design, this researcher made a decision that a questionnaire would be designed to collect data for analysis.

To identify those barriers which were faced by women as they elected to become involved in a non-traditional trade or occupation, the barriers were ordered in sub-categories that include the following: Entering the Trades, Experiences On the Job, Possible Obstacles Toward Job Completion, and In General. In addition, a space was left for the participants to add free comments about the barriers which they faced upon deciding to enter a non-traditional apprenticeable trade.

Prior to designing the instrument, a meeting was held with Mr. Wayne Nixon, Registrar, Apprenticeship Trade and Certification (A.T. & C.), Edmonton, to discuss the research design and the accessibility which the researcher would have to the names and addresses of female apprentices registered with the A.T. & C. During this meeting, it was pointed out that the A.T. & C. would fully cooperate in the research. However, there was concern about the increased number of requests from researchers which the Registrar received to involve female apprentices in research. It was decided during the discussion that a questionnaire be developed in collaboration with a researcher for the University of Calgary and that the collected data be shared between the two researchers and Apprenticeship Trade and Certification. The recommendation was accepted by the two researchers for the following three reasons: to reduce the number of requests that female apprentices would receive to participate in re-

search; to involve as many apprentices in non-traditional trades as possible; and to work collaboratively with another researcher.

Data Collection

To collect data a four-part questionnaire was designed and used with 200 women in non-traditional apprenticeships trades to ascertain the barriers which they encountered when they became indentured as apprentices and as they proceeded to complete their apprenticeship training.

Part I asked participants about their employment history and personal information. For purposes of the research, this was considered demographic information. Part II asked those involved in the study to share information about their apprenticeship experiences. Part III asked participants about their technical training and apprenticeship schooling which an apprentice must complete. Part IV presented 30 barriers to access encountered by women seeking employment in the non-traditional trades. Participants were provided with a five-point Likert scale to respond to each of the 30 statements. The choices on the Likert scale were: "Strongly Disagree," "Disagree," "Neutral or Don't Know," "Agree" and "Strongly Agree."

Data from Part I were considered demographic data and were used by the researchers to develop a composite

profile of the apprentices involved in the study. Data from Part IV of the questionnaire were used to identify the barriers that women found who elected to participate in a non-traditional apprenticeship trade. Data from selected questions from Parts II and III of the research instrument were analyzed for additional information relative to an apprentice entering the trades and the schooling experiences which she might encounter.

## The Pilot Study

The questionnaire was pilot-tested with individuals who were also involved in the main study. The pilot test had the following objectives: To test whether the statements of the questionnaire were readily understood by those involved in the study; to determine whether statements should be rephrased due to ambiguity; to determine whether or not the questions were structured in the correct sequence; and, to determine the average amount of time needed to complete the instrument.

Before being used with those involved in the pilot study, the questionnaire was validated by a specialist in instrument design in the Department of Educational Psychology, Faculty of Education, University of Alberta. This review had the following purposes: to provide both face and content validity for the instrument; to determine if statements were properly sequenced; to determine if statements were correctly presented; and to determine if

additional statements were required. Following this review, the necessary modifications were made to the questionnaire before it was pilot tested.

For this phase of the research, journeypersons* and apprentices in non-traditional certified or registered technical training courses at Northern Alberta Institute of Technology were selected to be involved in the pilot study. These women were selected because they were readily available to the researchers due to the location.

From the results of the pilot study, it was found that the questions required minor revisions and that it took an average of 30 minutes for those involved to complete the instrument. In analyzing the results of the pilot study, it was found that some of the participants did not realize that the pages were double-sided. To avoid the possibility of this occurrence with the research sample, a small "please-turn-the-page" directive was included at the bottom of every second page of the revised instrument.

From the results of the pilot study, the questionnaire was revised before it was used with the research sample.

---

*For the purpose of this research, the term journeyperson is used in the literature to refer to a woman enrolled in a training program for a non-traditional trade.

Population and Sample

This study was a descriptive study, aiming to inform its participants, to educate practitioners and trainers of women who elect non-traditional apprenticeship routes for the provision of their livelihood and, finally, to deepen insight and enliven commitment among and between these groups in order to effect a transformation of consciousness (Carr & Kemmis, 1986, p. 93).

Registration statistics for the 1988-89 fiscal year reported by Apprenticeship Trade and Certification in the Annual Report for Alberta Career Development and Employment indicate that the combined registrations for males and females totalled 19,631 apprentices in 52 apprenticeable trades.

Of the 19,631 apprentices, 1,860 were women registered in traditional as well as non-traditional apprenticeable trades with Apprenticeship and Trade Certification, Alberta Career Development and Employment. The majority of the 1,860 women were registered in the following traditional trades: Baker (63), Beautician (1,110), Cook (263), Printing and Graphics Arts (120), Landscape Gardener (66); the remaining 238 women were registered in non-traditional trades (Annual Report, 1988-89, Alberta Career Development and Employment, pp. 46-47). In essence, this procedure stratified the population into two groups: women in traditional trades and women in non-traditional trades.

Personnel of Apprenticeship and Trade Certification, Access Initiatives, supplied the researcher with a list of the names and addresses of women enrolled in apprenticeship programs. The researcher was cautioned about the accuracy of this list because apprentices sometimes move and fail to provide their new addresses. In some instances, an apprentice may withdraw from the program and fail to request that his/her registration be cancelled. From the 238 women registered in non-traditional apprenticeship trades, a random sample of 200 first-, second- and third-year apprentices was taken. To select this sample, the procedure recommended by Dinham and Brooks (1976), in Exploring Statistics: An Introduction for Psychology and Education was followed.

## Methodology

The following methodology was used for the collection of the data to bring the study to its successful conclusion:

A search of the Educational Information Centre (ERIC) Data Base, and Current Index to Journals in Education (CIJE, 1966-1990) data base was conducted using the following descriptors selected from the ERIC Thesaurus: women, non-traditional, apprenticeship or apprentice, women, and apprenticeship or apprentices. Using this procedure, the researcher secured 52 hits. From these hits, 24 were selected for further review and

analysis because of the close relationship of these sources to the present study. Those references which were specific to the Organization for Economic Cooperation and Development (OECD) as they relate to women's issues were extracted from the ERIC Data Base. This process yielded 10 extracts. These 10 extracts, were obtained through inter-library loan because they were not available in the holdings or the University of Alberta library system.

A manual search was made of the literature belabouring women's issues, including titles from Vocational Education, Women's Studies, Adult Education, and cross-disciplines shelved in the libraries of the University of Alberta and, failing these, relying on the Inter-library Loan Services to obtain materials from libraries in other provinces and countries. Two other significant data bases were also examined to uncover research which may have been previously done on this same topic. The first of these was Dissertations Abstracts International. Of 27 possible dissertations identified, five resembled studies near or related to this study. The second data base examined relevant theses and/or dissertations was the Directory of Education Studies.

From this search, relevant literature was selected and, from that literature, 30 barriers, categorized into four main groups -- Entering the Trades, Experiences on the Job, Possible Obstacles toward Job Completion, and In General, to women in non-traditional trades, were

identified. Information collected from both the electronic and manual searches, as well as information from the literature reviewed were used in the preparation of both statements for the questionnaire and the content of the second chapter of this report. The procedure for designing and pilot-testing the questionnaire is fully described under a previous section of this chapter entitled "Instrumentation."

Telephone contact was made with the Acting Director of Access Initiatives Branch, Mr. Garry Dinhart, Apprenticeship and Trade Certification, for two purposes: first, to arrange a meeting with him to discuss the research; and, second, to ask him to cooperate in the research by providing the names and addresses of women registered or who had completed an apprenticeship in a non-traditional trade. During the meeting which was held, it was pointed out that the Branch had recently received similar requests from other researchers. It was highly recommended that a second meeting be held. The following people attended: The Registrar, Mr. Wayne Nixon, and Mr. P.G. Crawley and Mr. Benjamin Drummond of Apprenticeship and Trade Certification; Mr. Garry Dinhart of Access Initiatives; Mr. Robert Beaune, graduate student, University of Calgary doing similar research; the supervisor for this study; and the researcher.

The Registrar reiterated what the Director, Access Initiatives, had stated at the previous meeting--

that there was significant increase in the number of research requests from researchers that Apprenticeship and Trade Certification received to involve women. To prevent these individuals from being inundated with requests, it was recommended by the Registrar that the two researchers collaborate on designing the questionnaire and sharing the collected data. This recommendation was accepted and the two researchers collaborated in designing the four-part questionnaire. The previous section on "Instrumentation" fully describes the procedure which was followed to design the questionnaire.

The Registrar indicated that the responsibility of the researchers would be to design both the covering letter and the accompanying research instrument, and to pay return postage for the return of the completed instruments. Apprenticeship and Trade Certification would be responsible for stuffing and paying postage for the initial mailing. It was further agreed between the researchers and personnel of Apprenticeship and Trade Certification that the information collected, in addition to being shared by the researchers, would become part of the data base of Apprenticeship and Trade Certification and that all instruments received would be turned over at the conclusion of the research. Appendix A (p. 226) contains copies of the covering letter and the research instrument.

The researchers prepared a covering letter for the signature of the Registrar. This letter would become part of the research package that included the covering memorandum from the researchers to the participants which guaranteed complete anonymity for those involved in the research; participants were informed that only the researchers had access to the data provided, and that Apprenticeship and Trade Certification would eventually access the data. They were also informed by the memorandum that data would be treated as privileged information. The content of the memorandum also guaranteed that research ethics would be strictly adhered to throughout each phase of the investigation, and that participants had the privilege to withdraw from the research at any time without prejudice.

A copy of both the research design and the research instrument was submitted to the Department of Adult Career and Technology Ethics Review Committee. The purpose of this review was to ensure that the research design was conducted in accordance with the ethical guidelines for conducting research established by the University. The Ethics Review Committee approved the study as meeting the guidelines.

A research package that included the covering letter signed by the Registrar, the memorandum from the two researchers, the questionnaire, and a self-addressed, stamped envelope was mailed to the 200 apprentices

selected to participate in the research. From the initial mailing, 80 completed questionnaires were returned for a 25% rate of return.

To increase the rate of return, a follow-up procedure was implemented and a second research package was mailed to the participants who failed to respond to the initial mailing. From this procedure, an additional 42 completed instruments were received for a total of 122/200, which increased the rate of return to 61%.

The collected data were analyzed and organized into tables for ease of interpretation. From this analysis, conclusions, recommendations and observations were made.

## Data Analysis

Data collected with the questionnaire were placed in tables which show measures of central tendency in the form of frequencies and percentages. These data were analyzed and reported in manuscript form for ease of comprehension by the reader.

## Organization of the Thesis

This research report has the following organizational pattern: Chapter II reports on literature and research related to the current study. Chapter III presents an analysis of the data collected during the

various phases of the study. Chapter IV reports the summary of the study with conclusions, recommendations and observations related to the research.

# CHAPTER II

# REVIEW OF RELATED LITERATURE AND RESEARCH

## Introduction

The content of Chapter I of this report contained the research design and the methodology which was used to collect relevant data. A description of the research population and how it was selected was also presented in Chapter I. The research questionnaire and its development is a major section of the last chapter.

This chapter comprises two major sections. The first section is a review of related literature and consists of the following divisions: (a) an historical overview of the evolution of apprenticeship and its provincial legislation for the Province of Alberta; and (b) a review of the literature on the barriers that women face when they elect to enter a non-traditional occupation.

The second section of this chapter concentrates on research which has been completed and which was directed at women in "non-traditional" trades.

## Historical Overview of Apprenticeship in Alberta

Apprenticeship is one of the oldest forms of training for skill development, having persisted in a variety of forms for over 4,000 years (Mulhern, 1946; Butts, 1955; Roberts, 1965). While the concept of apprenticeship extends back through the Guilds of Medieval days and into Antiquity, the origins of what had been termed "modern apprenticeship" are the result of the Industrial Revolution. This form of training was a neglected field in Canada until 1914, when both the Canadian Pacific and Canadian National Railways initiated industrial apprenticeship programs to meet their needs for skilled labour.

One year earlier, in 1913, the Canadian federal government struck The Royal Commission on Industrial Training and Technical Education; the Commission examined the state of technical training in Canada and other major industrialized nations of the time. Under the terms of the Commission's mandate, it examined training education as it applied to youth as future workers or as students who were about to enter the work force. No evidence exists that the investigation was gender-specific and excluded women, although it sought input from employers, employees, skilled tradesmen, union groups, and educators.

What the Commission did find was that the modern factory system of manufacturing required new means of

provision for apprentices, due to the fact that machines were replacing highly skilled workers. This, in turn, created urgency of production in order for industry to recoup capital expenses incurred by machinery purchases. This process omitted commensurate provision of apprentice instruction (Rainsforth, 1990, p. 273). Commissioner Robertson warned of a trend toward the disappearance of apprenticeship; an obvious decline of popularity of apprenticeship was then evident in Europe, with a predictable replication of this trend likely to occur in Canada (Rainsforth, 1990, p. 273).

The Commission also noted that this was in part due to "extreme divisions of labour for the mechanic, the opportunities of ready employment for boys as unskilled labour at relatively high wages" (Rainsforth, 1990, p. 273). Equity for women in any of these three areas was a moot point.

Training of the apprentice or working person was then the responsibility of industry, which appeared willing to meet this responsibility due to stiff competition which had the effect of eliminating the careful fostering of the old craft apprenticeship instruction.

A major finding of the Commission which had implications for apprenticeship was that "apprenticeship could remain a viable method of training skilled workers for industry, but needed to be under the control of some

level of government in order to ensure quality training" (Rainsforth, 1990, p. 168). The Commission's recommendations included that a dual system of apprenticeship training be used, whereby schools were to form a partnership with government in apprenticeship training. This partnership would provide the necessary technical and academic instruction in school, supplemented with the requisite industrial training on the job site. It was envisioned that such a partnership would produce a well rounded worker.

Prior to entry into World War I, sometime between 1913 and 1914, personnel of Canada's chief national railway system, the Canadian National Railway (CNR), found itself unable to fill its needs for skilled workers through immigration (Rainsforth, 1990, p. 168) and turned to pre-industrial revolution-style apprenticeship to meet these needs. Circa 1914, the CNR instituted its apprenticeship system when it provided this type of training to apprentices in eleven trades, as follows: machinist, boilermaker, blacksmith, moulder, pipe-fitter, electrician, carpenter, tinsmith, painter, pattern-maker, and upholsterer (Williams, 1920, pp. 22-24). Those railway apprentices from Alberta apprenticing in any of these trades were required to travel to Winnipeg to receive their technical training which included classes in mathematics, physics and mechanical drawing. An apprentice was indentured for a minimum of five years in

each of the above-mentioned trades. For the last two years of the indenture, apprentices from Alberta were normally relocated to Winnipeg where they completed their final training by attending night school, two nights a week, in the two technical high schools in Winnipeg.

An observation made by Williams (1920) was that the average boy from public school (Williams does not include females) exhibited very few, if any, transferrable skills that were applicable to the training of an apprentice. Hence, this required the revision of further education along the lines of any given trade with emphasis on technical training (p. 23). Most boys who accepted apprentice training with the CNR typically had not completed high school.

By 1920, more than 120 males were apprenticing in the Fort Rouge shops (Williams, 1923). Additional apprenticeship programs were made available in Moncton for the eastern province of New Brunswick. By 1925, apprenticeship programs enroled 130 apprentices in this CNR training site (Goguen, 1925, p. 8). The Moncton trades programs utilized the contracted services for the theoretical portion of the apprenticeship programs from the International Correspondence Schools with specific instruction design for each trade (Appleton, 1920, p. 25).

Until this point, the completed research on apprenticeship programs indicated their status as being incipient, rather than being fully actualized. In Canada,

the apprenticeship programs of the early 20th century inaugurated by its railways "evolved with the changing technologies employed by these railways. These programs have not expired but are currently operating throughout the major repair facilities in Canada" (Rainsforth, 1990, p. 88).

In a research report titled A Descriptive Study of the Evolution or Apprenticeship in Alberta, Rainsforth (1990) holds that in 30 years, between 1905 and 1935, there were a number of federal acts passed that provided cost-shared funds to support vocational education. During this period, however, there was no legislation enacted at the provincial level which dealt with apprenticeship training per se. Some of the provincial acts dealt with qualification of tradesmen in specific trades, but none of these acts addressed the process which one had to follow to become an apprentice, nor the training one was to receive as an apprentice leading to journeyman certification. These acts are reviewed in a subsequent section of this report.

It was federal legislation, enacted in 1939, that appeared to strike work equity balance between male and female. The Youth Training Act of 1939 was aimed at the training of unemployed youth by allocating $4.5 million for training unemployed youth over a three-year period. Unfortunately, as a result of the start of hostilities

that led to the Second World War, The Youth Training Act was never proclaimed.

When Canada became involved in World War II in early 1940, manpower authorities soon discovered that Canada was tragically short of skilled tradesmen and those that were available had, in most instances, been trained abroad. To meet this need, crash programs were put together to train skilled workers.

The Dominion Government in 1942 enacted the Vocational Training Coordination Act, which was permissive legislation that provided federal funds to the provinces to undertake apprenticeship traning as a public responsibility. Under the terms of this Act, the federal Minister of Labour, with the approval of Cabinet, could enter into an agreement with a province to provide vocational training for apprentices or supervisors in any industry (Statutes of Canada, 1942, p. 180). The rationale behind this policy was twofold:

1. From the war experience, Canadian authorities learned that an industrial country must have a constant source of skilled workers in order to be competitive; and,
2. At the cessation of hostilities, there would be a massive influx of inappropriately trained workers into the labour force.

## An Overview of the Apprenticeship System in Alberta

In 1944, as per the requirement of the Dominion Apprenticeship Agreement, the Legislative Assembly of Alberta enacted the Apprenticeship Act. Alberta joined the federal government in a bilateral apprenticeship agreement based on the concept of equal cost sharing. This was to include salaries of instructors, materials and supplies, and training allowances for apprentices in full-time classes (Statutes of Canada, Ottawa, 1946, pp. 116-117).

It is important to note the difference between an "Apprenticeship Act" and an "Apprenticeship Agreement." In this instance, one is a provincially enacted piece of legislation, while the other is an agreement between the two levels of government on the funding of formal trade training, respectively. The Apprenticeship Act in Alberta was proclaimed in 1945. In January of the same year, the Apprenticeship Board was appointed. And three months later, in April, the first Director of Apprenticeship -- J.P. White -- was appointed. The Act provided for the structure of the apprenticeship system which included the Apprenticeship Board, Provincial Advisory Committees, Local Advisory Committees and the Director of Apprenticeship with support staff. This advisory system was organized to provide the Minister of Labour with recommendations about the general problems of

apprenticeship specific to the trade of the Advisory Committee. Local Advisory Committees worked with Provincial Advisory Committees to suggest policies to the Provincial Apprenticeship Board.

Much of the initiative for the organization and direction of the apprenticeship program in Alberta comes from industry. In Alberta, apprenticeship is considered to be industry-driven; employment must be a provision for on-the-job training to occur, therefore industry serves as an indispensable link in the apprenticeship chain.

Apprenticeship is a process through which men and women learn to become skilled trades people. Apprenticeship is paid employment, which is a sequence of work experience supervised by a skilled "Journeyman" with related classroom activities, technical training or theory taught by instructors at institutes of technology, provincial colleges, private vocational schools, or industry.

Apprentices are indentured to an employer by contract and they complete a series of job assignments that extend through every major area of the trade for which they are training. To become indentured as an apprentice, one must be employed and work under the supervision of a "Journeyman."

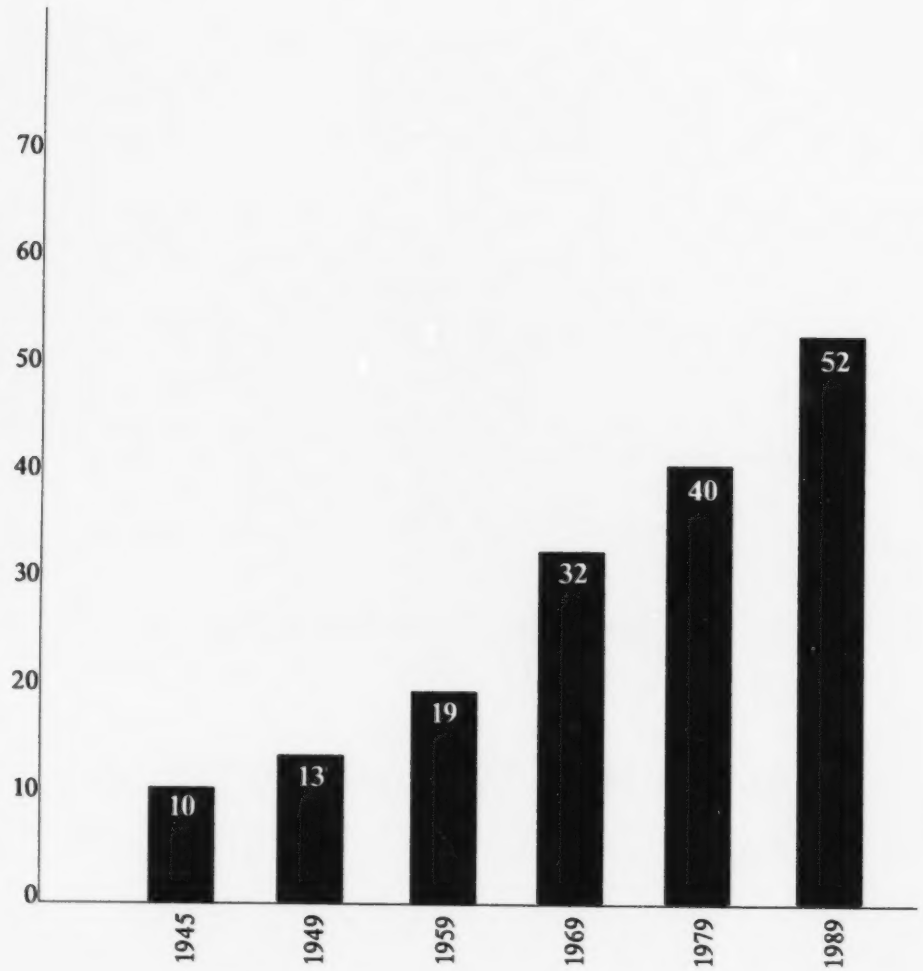
The length of the full apprenticeship program varies from two to four years, depending on the trade, with the majority of the programs lasting four years.

By December 31, 1945, nine construction trades and the motor mechanic trade were designated with apprentices registered with the Apprenticeship Board. By December 31, 1949, the number of designated trades had increased to 13 with 1,869 registered apprentices; and ten years later, the figures had increased to 19 and 4,789, respectively. Apprenticeship statistics depict the continual increase in the number of designated trades and the number of registered apprentices: in 1969, 32 designated trades and 9,239 active apprentices registered; in 1979, 39 designated trades and 22,525 registered apprentices; and in 1989, 52 designated trades and 20,952 registered apprentices -- a decrease from the previous ten-year period. (Statistics for the number of trades designated between 1945 and 1989 are illustrated in Graph 1, p. 36).

For a variety of reasons, a number of registered apprentices elect to leave the program early and discontinue their training. Individuals who follow this route are recorded as a cancellation. Unfortunately, cancellations for 1949 were lost in a fire which occurred in 1963 when other records of the Branch were also destroyed. Statistics comprising the number of apprentices who elected to cancel their contracts for the years 1959, 1969, 1979 and 1989 were 863 (18%), 912 (10%), 2,385 (11%) and 2,951 (14%), respectively (see Graph 2, p. 37).

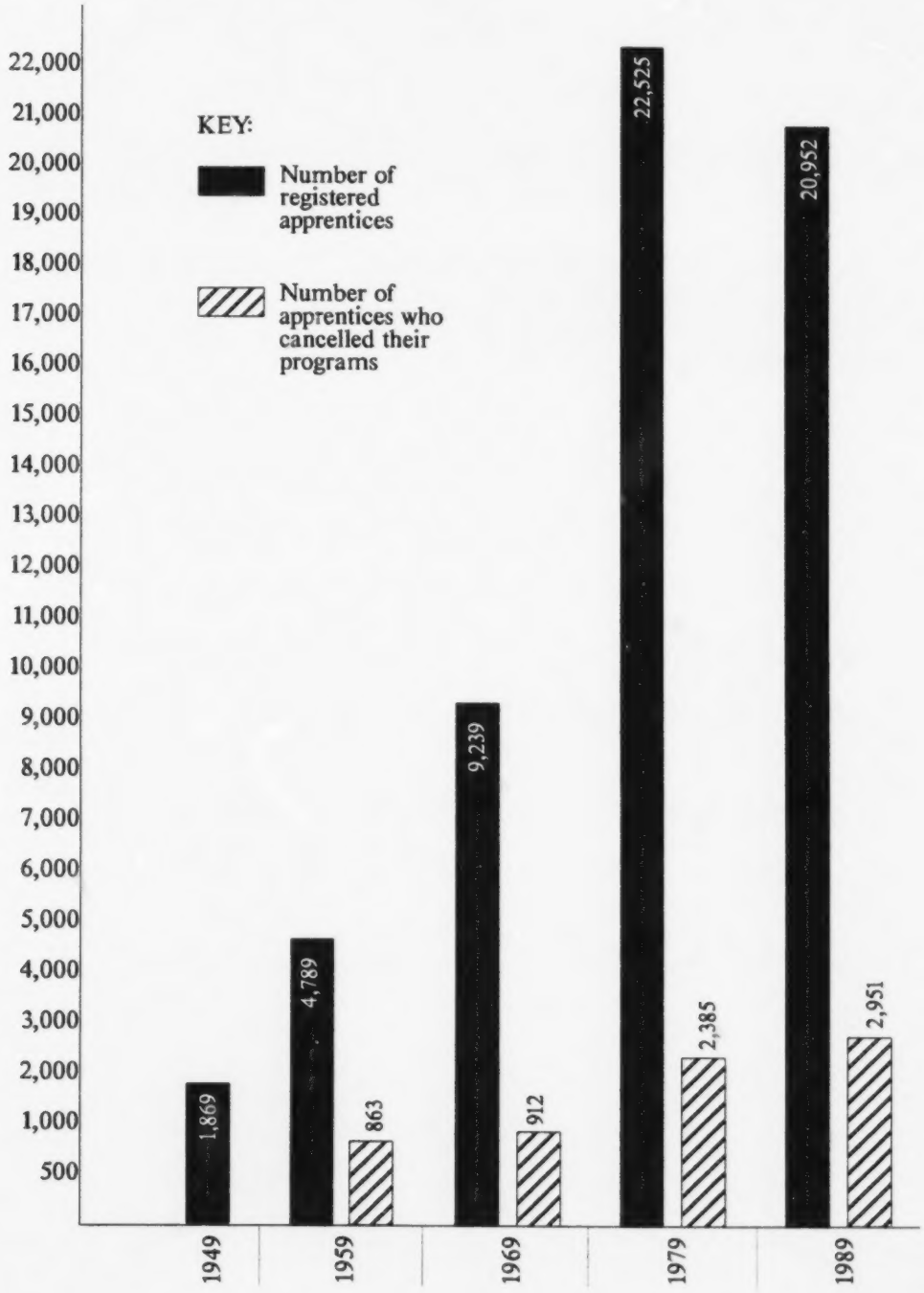
Graph 1

Number of Designated Trades, 1945 - 1989



Graph 2

Number of Apprentice Registrations and Cancellations, 1949 - 1989



Other Legislation

This overview of the apprenticeship system in Alberta would not be complete without some reference to other provincial legislation which had a direct relationship to apprenticeship training. These were the Tradesmen's Qualification Act (1935), the Welding Act (1941), the Manpower Development Act (1976), the Apprenticeship Training and Certification Act (1985), and the Apprenticeship and Industry Training Act (1991).

The Tradesmen's Qualification Act (TQA) was passed in 1935. This Act named certain trades where "compulsory certification" would apply and it made provision for other trades to be designated upon petition from industry. The Act also provided to the Lieutenant Governor in Council authority with respect to administering examinations and issuing certificates in designated trades. The Act made no provision for training apprentices.

The Welding Act (1941), comprised of similar legislation as the TQA, applied specifically to the welding industry. In addition, this legislation also made provisions for specifying standards for welding equipment and the appointment of inspectors.

The Apprenticeship Act, passed in 1944, made provision for the registration and training of apprentices. An industry advisory committee structure was established consisting of local and provincial advisory committees for each trade. Both the local and provincial

advisory committees reported to the Provincial Apprenticeship Board which consisted of representatives from industry who were appointed by the Lieutenant Governor in Council. The Provincial Apprenticeship Board regulated the apprenticeship program and advised the Minister of Trade and Industry on all matters related to apprenticeship. The Act called for the appointment of a Director of Apprenticeship and other support personnel to carry out the provisions of the Act. This Act provided the first formal definition found in provincial legislation for the term "apprentice."

The Apprenticeship and Tradesmen's Qualification Branch administered all three of the Acts just mentioned as though they were a single piece of legislation.

In 1975, the Department of Manpower and Labour was restructured and a Manpower Division was created which included the Apprenticeship Branch (Apprenticeship Training and Qualifications Branch Annual Report, 1974, p. 2). As a result, portfolios were realigned and the Minister of Manpower and Labour was moved to the Department of Advanced Education and Manpower, transferring the Manpower Division to that department.

On March 7, 1973, the Minister of Labour announced to the members of the Legislature that the Apprenticeship Act, the related Tradesmen's Qualification Act and the Welding Act would be opened up to bring new legislation in the spring of 1974 (Alberta Hansard, 1973). With this

announcement it was also indicated that briefs from the public would be received and, in addition, that public hearings would be conducted. As a result of the briefs presented to the Minister, a consolidation of the three laws was achieved through the enactment of the Manpower Development Act (MDA). This Act was proclaimed on November 1, 1976.

Under section 4 of the MDA, the Apprenticeship and Trade Certification Branch was designated to administer the Act. The structure of the apprenticeship system underwent the following modifications:

| FROM | TO |
|---|---|
| Apprenticeship Branch | Apprenticeship and Trade Certification Branch |
| Director of Apprenticeship (DA) - civil servant | Executive Director of Apprenticeship - civil servant |
| Apprenticeship Board (DA) Chair - civil servant | Alberta Apprenticeship and Trade Certification Board: Chair - non-civil servant |
| Provincial Advisory Committee - each trade | Provincial Apprenticeship Committee - each trade |
| Local Advisory Committee - each trade | Local Apprenticeship Committee - each trade |

It is important to distinguish between the "Apprenticeship and Trade Certification Board," which recommended policy in the capacity of an advisory group to the Minister, and the "Apprenticeship and Trade Certification Branch," the administrative organization for apprenticeship training responsible to the Assistant Deputy Minister who was responsible for Manpower Services Division.

Under the terms of the MDA (1976), an apprentice is defined as a person at least 16 years of age who "enters into a contract of apprenticeship in accordance with Part 3 under which he is to receive from or through his employer instruction and continuous employment based on the amount of work in a designated trade" (Section 1 {i[a]},{ii}). Of the 52 designated trades in Alberta, formal training is available in all trades but the trades of Water Well Driller, Tile Setter, Plasterer, Elevator Constructor, and Projectionist (see Appendix B, p. 246, for a list of names of all designated trades).

From the above definitions, three important points emerge: first, apprenticeship requires a contract between the employer and the apprentice, which suggests a closer relationship than that found in the usual employer/employee arrangement (see Appendix A, p. 226, for a sample contract of apprenticeship); second, the employer is responsible for instructing the apprentice; and third,

the term "designated trade" is applicable when a trade is formally recognized through Ministerial or Cabinet Order.

In Alberta, there are two types of trades: Qualification trades, trades which have voluntary certification; and proficiency trades, trades which have compulsory certification. In the case of proficiency trades, public safety is a major concern (see Appendix B, p. 250, for a listing of both trades).

A review of the MDA was initiated by personnel of the Apprenticeship and Trade Certification Branch in 1984 in order to meet the mandate of the government, that is, to provide clear, precise and simplified legislation. The objective of the review was to remove administrative details and to clarify the intent of the Act. The review concluded with the introduction of Bill 35, Apprenticeship and Trade Certification Act to the Legislative Assembly. Bill 35 received Royal Assent in 1985. Prior to being proclaimed, submissions were received from members of industry who were requested to provide input. It was evident from a consensus on these submissions that the philosophy of the legislation should be reviewed prior to proclamation. Consequently, Bill 35 was not proclaimed and, in 1987, the Apprenticeship and Industry Training Review Committee was established by the Minister of Career Development and Employment to conduct public hearings.

The Review Committee, created in April 15, 1987, by the Minister of Career Development and Employment,

consisted of six members from the Apprenticeship and Trade Certification Board under the Chairmanship of J.D. Ritter. This Committee was given the mandate "to examine the current state of training and certification of the skilled work force in Alberta and to identify needs and direction for the future" (Final Report, Apprenticeship and Industry Training Review Committee, 1988, p. 11). The Minister announced on June 26, 1987, that he had appointed a 12-member Advisory Panel to the Review Committee. Members on the Advisory Panel were to "examine the Review Committee's findings and to advise it on any reviewed matters" (Final Report, Apprenticeship and Industry Training Review Committee, 1988, p. 12).

The Committee received information from the public through written submissions (243) and oral submissions (121) which were heard in nine locations throughout the province. On February 22, 1988, the Committee submitted its final report to the Minister of Career Development and Employment, wherein the Committee made 25 recommendations some of which were considered to be controversial. In turn, the Minister requested that the Advisory Panel review the Final Report and provide him with comments (Apprenticeship and Industry Training Review: Comments of the Advisory Panel on the Review Committee Final Report, 1988, p. 1). Of the 25 Review Committee recommendations, the Advisory Panel unanimously supported 19. The Panel made minor amendments to the wording of two other

recommendations to strengthem them. As for the remaining four recommendations -- compulsory participation in apprenticeship training; certification; cross crafting; compositions of the Apprenticeship and Trade Certification Board -- the Panel dissented.

Prior to issuing a discussion paper in June of 1990, "The Training and Certification of Alberta's Skilled Work Force," the Minister of Career Development and Employment circulated a document on the "Principles of Proposed Legislation Governing Apprenticeship and Occupational Training" to those who made presentations to the Review Committee. Accompanying the discussion paper was a proposal for an Industry Training Act, as well as a message from the Minister which stated, "The proposed legislation provides a framework with sufficient flexibility to accommodate both present and future training needs of Albertans" (Discussion Paper, 1990, pp. 1-2). The Minister continued by saying, "Following the review and revision from comments received, we had hoped to present to the Legislative Assembly in the Spring of 1991 a piece of legislation which would provide a clear, comprehending and contemporary framework for the training and certification of Alberta's skilled work force" (p. 2).

As previously mentioned, the contentious issues surfaced relative to the proposed Industry Training Act. Among these issues were the abolition of compulsory

apprenticeship training in 33 trades. Those involved in these trades felt that safety would be compromised and the apprenticeship system for these trades scrapped. The Act was revised and retitled Bill 11 - The Apprenticeship and Industry Training Act, which, at the time of this writing, was waiting to be proclaimed.

Interprovincial Standards Program (Red Seal)

The Interprovincial Standards Program is a program designed to increase the mobility of "journeymen" in the construction, maintenance, repair and service trades that make up the occupational structure of the nation's labour force. To increase the occupational mobility of skilled workers to move from one region of Canada to another, the provinces and territories, in cooperation with the federal government, established the Interprovincial Standards Examination Program in 1958. The purpose of this program was to establish uniform apprenticeship standards and examinations for most certifiable trades (A Passport to Jobs in Your Trade: The Interprovincial Standards Program, n.d.).

Journeymen who gain interprovincial status through the program by passing the Interprovincial Standard Examination for their respective trades, have a distinctive numbered "Red Seal" attached to their provincial or territorial certificate, as well as their pocket identification card. The first trade to be

designated in Alberta under this national program was that of Motor Mechanic, receiving such status on January 1, 1959. The most recent trade to receive the Red Seal designation was that of Beautician in 1988. At the writing of this report, there were 52 apprenticeship trades in Alberta, 23 of which were designated as Red Seal trades (see Appendix D, p. 252, for a complete listing of the 22 Red Seal trades).

In 1989, members of the Interprovincial Standards, Coordination Committee -Directors of Apprenticeship from across Canada, and a representative from Employment and Immigration Canada made the decision to change the name of the Committee to the Canadian Council of Directors of Apprenticeship; "this new name better reflects the membership of the committee" (Canadian Council of Directors of Apprenticeship, Newsletter, n.d.).

## Disadvantage and Apprenticeship Training

In 1981/82, personnel of the Apprenticeship Branch established a Special Field Unit designed to serve Native, Handicapped and Incarcerated people (Alberta Advanced Education and Manpower, 1982, Annual Report, 1981-82, p. 13). This Unit had province-wide responsibility to provide apprenticeship and trade services for the above-mentioned designated groups. The Special Field Unit operated out of the Edmonton office (Alberta Manpower, 1985, Annual Report, 1984-1985, p. 19). These groups were

designated by the federal government as requiring special needs if traditional imbalances in the workforce were to be corrected. Interest in this Unit continued through 1982; statistics released for that year record 75 new apprentices registered with the Special Field Unit (Apprenticeship and Trade Certification Branch, Annual Statistical Review, 1982, p. 13).

At some point during the 1985/86 reporting year, the Special Field Unit was renamed Programs for the Disadvantaged; this branch of the Apprenticeship and Trade Certification continued to identify, develop and coordinate programs for training and certification in designated trades for disadvantagedd persons. A disadvantaged person included "any person who, through financial circumstances or geographic residential location, is unable to gain employment as an apprentice or gain certification to a journeyman in the work force; the incarcerated; parolees; and the disabled" (Alberta Manpower, 1986, Annual Report., 1985-1986, p. 17).

In the 1987/88 fiscal year, the Programs for the Disadvantaged Branch was restructured and renamed the Access Initiatives Branch. When the Branch had first been formed as the Special Field Unit in 1981, the Unit had initial responsibilities for training needs among Native, handicapped, and incarcerated persons. A lack of focus proved problematic for service delivery, and this did not improve when women were added to the mandate after

restructuring and a name change to the Access Initiatives Branch took place (Alberta Career Development and Employment, 1988, Fiscal Year 1987/1988, p. 20). In the case of women, as well as the disabled, Natives, visible minorities and immigrants, the Branch was to "address barriers external to the apprenticeship system which prevented [their] full participation in the trades" (p. 18). The Annual Report shows that the Access Initiative Branch provided examination assistance to 467 individuals with special needs.

In 1988-89, the Branch focused on helping to reduce barriers which made it difficult for disadvantaged individuals to gain access to fully participate in the designated trades. To increase awareness of this program among employers, copies of the brochure "Investing in People on the Job" were mailed to over 50,000 employers in the province (Alberta Career Development and Employment, 1989, Annual Report, Fiscal Year 1988-1989, p. 10). Employment statistics for 1988-89 show that of the 19,631 apprentices registered, 1,860 were female. This represented less than 10% of the workforce in most trades. The majority of the women were registered apprentices in traditional trades for women: Barber (63); Beautician (1,110); Cook (263); and Partsman (99) (Alberta Career Development and Employment, Annual Report, Fiscal Year 1988-1989, 1989, pp. 46-47). In addition to these trades, women were also registered as apprentices in the

following trades: Barber, Landscape Gardener, Printing, and Graphic Artist.

Registration numbers for 1989 show 21,000 apprentices employed. Female apprentice representation, according to Alberta Career Development and Employment (1989) statistics, comprised 238 female registered apprentices, 1.133% of the total number registered. (The total female registration figure and its overall percentage equivalent excludes those trades historically designated as "traditional" to women. These trades include Baker, Beautician, Cook, Landscape Gardener, Printing, and Graphic Artist.)

In a 1990 Summary Report by Alberta Apprenticeship and Trade Certification, the same overall number of female apprentices in the non-traditional trades showed a registration of 277 women. In three years, a total of 39 more women chose the non-traditional apprenticeable trades as a career.

One factor in accounting for the increasing number of successes for the Access Initiatives Branch for this marginal population may be its stated goals, which include:

1. Addressing the barriers which currently prevent individuals from acquiring employment in the trades;
2. Promoting awareness of the trades as a career choice to those groups of individuals currently not participating in the trades;
3. Developing bridging programs to facilitate access to the trades;

4. Providing workshops to career advisors on trades and technologies as well as on designated groups; and,
5. Identifying and responding to the problems of apprentices who have special needs. (Bell, 1990, p. 17)

## Apprenticeship Goals as Enhancers to Women's Trades Entry

Within the goals of the Alberta Apprenticeship and Trade Certification Board are three main areas of initiative that appear to create bridging possibilities for women seeking equitable work in the trades. The goals encompass standardization of training and certification through the Interprovincial Standards Program (Red Seal Program) now known as the Canadian Council of Directors of Apprenticeship, cross and inter-provincial communications networks through the Western Canada Alliance of Apprenticeship Board Chairmen, and cost-effective training alternatives bridging provincial, interprovincial and international levels (Bell, 1990, p. 18).

The "Red Seal Program" had as its historical roots the goal to increase interprovincial mobility among journeymen. This program extended the ability of the majority of certified journeymen to compete in "23 trades in the national labour market" (Bell, 1990, p. 18). Women as "journeymen" would have equitable access to this process and the mobility which it afforded.

Through the "Western Canadian Alliance of Apprenticeship Board Chairmen," regional matters were

targeted for discussion and communications. Its chief goals, which include improving interprovincial cooperation and making recommendations to provincial and federal governments, allowing women apprentices considerations from within the structural tenets and its implied policies in pursuit of those goals, were as follows:

1. Standardizing training and course curriculum to improve the mobility of apprentices;
2. Centralizing low enrolment programs to ensure their viability and accessibility;
3. Sharing of training programs and facilities; and,
4. Developing new training methodologies. (Bell, 1990, p. 18)

Due to an acute shortage of skilled workers impacting the economic growth in many regions of Canada, Bell infers that such non-traditional trades areas as forestry, oil, and the petrochemical sectors naturally create demands for increased male and female participation of apprentices. Toward their support, two other provincial programs evolved to address potential skill shortages. They are the Apprenticeship Work Experience Program and the Apprenticeship Awareness and Promotions Program.

The former creates training positions within government departments where skill shortages are anticipated and provides supervised employment through on-the-job training. Technical training is given apprentices through provincial non-university post-secondary institutions; successful completion of this program leads

to status as a qualified journeyman with potential and future employment possibilities in the private sectors.

The Apprenticeship Awareness and Work Promotions Program evidently buttressed the Initiatives Branch's initial goals -- an increase in its target population, which includes women over the two-year span of 1991 and 1992. As of this writing, this was accomplished through visual and print media promotion campaigns with a complementary focus aimed at employers. A combined cost of $3.3 million was budgeted for these programs. An anticipated increase of 100 new apprentice positions per annum was the expected outcome, and the operant goal was "the desire to utilize apprenticeship training as an appropriate means to upgrade the skill level of the Alberta workforce" (Bell, 1990, p. 19).

## Barriers Encountered by Women Choosing Non-traditional Work

It will be recalled from the Methodology section of Chapter I that an electronic search was made of the ERIC Data Base using a number of descriptors. The result of that search was 52 hits. After analyzing the abstract for each, it was found that 24 of the 52 had a close relationship to the current study.

In addition, a manual search was made of the indices which are normally used to report the findings of educational research. The purpose of conducting these

searches was to identify from the literature the barriers encountered by women who prepared for a non-traditional trade.

The review of the literature which examines women, their choices of work, and barriers encountered by them, uncovers pervasive factors embedded in the socio-culture definitions which at once define women by gender and simultaneously thereby erect barriers. The literature presupposed a cross-disciplinary examination of theories which most clearly provided conceptual frameworks within which distinct outcomes could be seen, while at the same time demarcating distinct societal areas which give rise to barriers women encounter when seeking non-traditional work.

The theories espoused by such disciplines as adult education and feminist epistemology provided the author with explanations that included the widest and best possibilities of explanations for and analysis of barriers. Webster's Dictionary of the English Language (1987) defines epistemology as the branch of philosophy dealing with the study of the nature of knowledge, its origin, foundations, limits and validity. It is derived from the Greek language, meaning knowledge (p. 318).

Hence, this review of the literature did uncover reasons for the existence of barriers encountered by women whose choice of work is defined as non-traditional, the nature and origins of these barriers, the social

foundations that spawn and reinforce their existence, and the limitations which these barriers create for women as well as for men.

Critis (1969), examining adult developmental theories of human behaviour, viewed vocational job choice as determined by motivation, aptitude, attitudes, personality and social pressure (pp. 16, 325)

Osipow (1973) saw the explanation of how people select and adapt to their occupations as linked to attributes of a person's motivational system, behavior, and attitudes, as well as traits which included job-related skills and interests that do not vary greatly over time. The assumption can be made that vocational choice and satisfaction are determined by the correspondence between a person's traits and the requirements of the job (pp. 124-257).

Holland (1973) saw a person's vocational interests as a representative extension of his or her personality. He viewed occupations according to the interpersonal settings in which they are carried out, as well as their associated life styles (pp. 11-13). The preceding were deemed as being aside from their performance requirements alone.

For women, as with men, the socialization processes and their effects begin early in their lives (see Maccoby & Jackli, 1974, pp. 303-307; Schaie & Parham, 1976, pp. 146-157). This factor may present a major

reason for a woman's inability to fully achieve her vocational identity due to actual social barriers and her embrace of an introjected traditional feminine role. Yet, as adults who are exposed to experiences which can shape and reshape their identities, many adults do not rigidly adhere to traditional sex roles. This trend appears to be increasing with the attention being given to the need for individuals to seek alternatives.

Studies examining variations in career choices by women who became defined as "pioneers" (Nagely, 1971, pp. 331-341) found that career commitments were greater among women in male-dominated occupations than those in the more traditional fields, and achievement motivation was the highest ranked reason by them for job choice. Nagely (1971) and Kriger (1972), conducting studies to determine variations among women in career and family patterns, found women's choices of a traditional or pioneering career to be a reflection of their identity, and a source of continued influence as these women faced life events in the personal and social aspects of experiences. By choosing pioneering careers, they became distinct from other women while better positioning themselves to realize their vocational aspirations.

At the same time, the career "pioneering" woman appears to fulfil one of the two central developmental tasks of adulthood as seen by Erikson (1963); besides achieving intimacy through traditionally ascribed domestic

occupations and child caring, she also becomes generative, through such activity as creative, productive work in one's own right as well as on behalf of others (Rich, 1977, p.i). Nevertheless, according to other researchers, women in traditional occupations are also seen to achieve these same developmental phases.

Contributing author Rich's (1977) introduction to Working It Out states that:

> The choice of more and more women to earn an independent livelihood, pursue a career, or develop a work of their own is partly a result of technological and political changes: effective contraception, a longer life span, higher education. (p. i)

The author also chronicles that the decades' "phenomenon" of women actively and urgently claiming the right to do significant work has thereby raised the even larger issue of the place of meaningful work in adult life for all--men, as well as women. "Women have always worked. Throughout the world and down the years, they have worked because they had to. There is nothing new in women working" (p. i).

The Director of Education for Northern Telecom Canada Limited, Claudette MacKay-Lassonde (Exetasis, 1989) contends that women need not only shed the "non-traditional role" or label of technical and trades work, but that their attraction to them should be of paramount importance. Their work involvement and participation in a highly competitive global market environment means economic survival (p. 2).

Social-cultural Obstacles and Women's Work

Huyck and Hoyer (1982) delineate the differentiation of people through the system of social stratification. In the Western post-industrial countries such as Canada and the United States, status within the stratification system determines one's rights and responsibilities relative to other people. This method of differentiation of people is based on such characteristics as biological attributes of sex, ethnicity and age, and within these classifications, a hierarchy is established, which leads to:

> Shared beliefs about characteristics associated with individuals in a particular social group regarded as stereotypes, which while they may accurately reflect unique characteristics of groups of people, may reflect the allocations of rewards and roles of a status system which often form the basis of discrimination, and discrimination is a systematic denial of opportunities or rewards on the basis of some ascribed characteristic. These may be blatant or subtle in nature, and focus on sex, race, and age. (Huyck & Hoyer, 1982, p. 42)

Social systems, such as those found in Canada and the United States, value ideologies that provide social rewards based on achievement, rather than on ascription. Yet, "ample evidence of sexism, racism, and ageism" (Huyck & Hoyer, 1982, p. 42) abounds in these contemporary societies.

It may be useful at this juncture to examine some contemporary designations or definitions of gender and sex roles as examined by sociologists and anthropologists.

According to Money and Ehrhardt (1972, in Huyck & Hoyer), it has been shown in several cases that it is very difficult to reverse gender identity by age two. Generally, basic gender identity agrees with the sex of assignment and rearing, or, as assigned by parents at birth. Kohlberg (1966) additionally indicated that gender identity is a stable self-attribute by age six or seven.

The term "sex role" has more diverse usage (Angrist, 1969, pp. 215-232). Anthropological use of the definition describes the positions which men and women do occupy and are expected to occupy socially. Sociologically, the definition describes sex-linked expectations that women and men use to relate to each other. The psychological model examines the contrasts between women and men through such characteristics as found in behaviour, personality, preferences, intellect and abilities. Social sciences and its adherents, it appears, hold that evidence supports that sex is used as a stratification system.

Feminist epistemology interprets sex differences examined thus far as oppressive to women and their positions in the social matrix. According to Freeman (1979) as well as Williams (1977), sex differences are assumed to reflect learned behavior, not innate differences, and the ideal society is considered one in which power, authority, and wealth are not disproportional under male control.

Contrasted with these two ideologies are those of the radicals who see sexism as the most fundamental and most unfortunate form of inequality in any society (see Firestone, 1970; Gornick & Moran, 1971; Huyck & Hoyer, 1982, p. 50), and other socialist feminists who place more emphasis on the interaction of social class and gender as they shape male and female experiences. For these researchers, the ideal society's structure might be both classless and genderless. Furthermore, Jaggar and Struhl (1978), as well as Baude (1978) looked at possible socialist models of sex differences sustained by the forms of family and work life found in capitalist, private-wealth societies. The model's assumption included women more or less enslaved by their labor as unpaid housewives and mothers; this left men free to control wage, labor and wealth.

That social structure affects allocation of rewards by sex roles was further studied by Youssef and Hartley (1979). Their studies found a direct link between the equality of women and men as a reflection of economic development. Safilios-Rothschild (1971) looked at different developmental levels of various countries, and concluded:

> a) in countries at medium levels of economic development women are provided the greatest opportunity to work, to work after marriage, and to enroll in college; and,
> b) in the least advanced economies women have the greatest opportunities to compete with men in professional employment . . . women

> [here] are often an impressive proportion of all professional workers. (pp. 96-113)

According to still other studies of highly competitive industrial systems, "in which major sources of power and prestige are derived from achievement-based attributes, women have been denied equal access in the competition for highest educational, occupational and income opportunities" (Huyck & Hoyer, 1982, p. 51).

Hammer (in Kembell, 1981) states that we do live in a culture of rigid separation of conditioning for women and men (p. 115). Where do the roots of rigidity and separation originate? Huyck and Hoyer (1982) point to possible answers in their delineation of social policies regarding sex differences and sex status systems. Of the three main perspectives that guide these policies--pluralism, assimilationism, and hybrid theories, it is whichever one is followed that determines an individual's, group's, or society's mode of intervention also (p. 52).

Morgan (in Huyck & Hoyer, 1973) holds that the pluralistic ideology that stresses separation and differentiation of the sexes is the desired state whereby "man" is the chief and "woman" his natural helper. Two central consequences derive from this thinking and impact the occupational realm: "(a) it supports sex-typing of work (minimizing strenuous efforts to integrate already sex-typed fields); and, (b) when men and women do fill the same position, they will have a characteristically masculine or feminine style" (p. 52).

Spiro (1979) explains that pluralism is "based on conservative biological or socio-cultural explanations of human behavior, supported by evidence that sex-role divisions tend to persist even when conscious ideology and social structure blur the differences" (p. 107). Critics of this philosophy argue that "different" is always unequal, resulting in preferential valuing and rewarding of one set of characteristics over another.

Assimilationists focus their thinking on "helping the 'lesser' group become more like the dominant" group, and are known to use the refrain "why can't a woman be more like a man?" This view urges women to prepare for "masculine" work patterns, winning success by developing such masculine characteristics as rationality, emotional control, competitive assertiveness, and overcoming feminine "deficiencies" such as emotionality and intuitive thinking. Career success commensurately will then be assessed them "by how nearly it approximates masculine achievement" (Huyck & Hoyer, 1982, p. 53). This ideology makes the assumption that "women can become very much like men and that only by doing so will they have access to the same rewards as men, such as adequate income and self-esteem in later life" (Huyck & Hoyer, 1982, p. 53). Williams (1977), however, views this argument as seriously devaluing "feminine" qualities with the consequence of losing socially desirable characteristics embedded in

female sex roles and upsetting a vital balance in the home and the workplace (pp. 23-24).

Lipman-Blumen and Bernard (1979) infer that the hybrid ideology stresses androgyny, or the flexible combination of both masculine and feminine characteristics. Kaschak (in Kembell, 1981) defines this term as being operant within a person who is an integrated, whole human being with the ability to respond in terms of the demands of a situation and one's own needs, rather than respond to prescription and proscription (p. 254). Kaschak further describes androgynous persons as having the ability to be both active and passive, independent and dependent, and emotional as well as intellectual. According to Kaschak:

> [The androgynous woman] is an individual absolutely not a caricature of a member of her own or the "opposite" sex, but a new synthesis; an individual free to choose and change roles, an individual not confined by arbitrary psychological restraints. Such a person can only function in an environment that affords an equal opportunity to all people; one that does not assign tasks, roles, and lifestyles on the basis of the kind of genitals, colour of skin, etc. (p. 254)

Huyck and Hoyer (1981) add that:

> Those who favor this ideology, regard it as the only viable solution to current sex status inequalities, stressing that both men and women will have to change if either changes, change being necessary and inevitable because current costs of differentiation are excessive. (p. 54)

Given the explosion of feminist scholarship across the disciplines, editors Malson, O'Barr, Westphal-Whil and Wyer (1989) underwrite and further this ideology by

reviewing pervious ones as "rooted in androcentric bias where the dichotomy once held between sex and gender [provided] major insight that 'gender' is a social construct which has now become problematic" (p. 4). These authors promulgate the epistemology that by "engaging contradictions [of traditional categories and analysis], we can pursue a logic of concrete demands for women in the sphere of policy making, while rejecting essentialist thinking that would see women's interests as both homogeneous and fixed at the same time" (p. 9). Adds Alcoff (1989), in defence of androgyny within the feminine epistemology:

> With regard to the pros and cons of social policies, [and women's needs], if needs are identifiable they can therefore be used as a yardstick in evaluating social policies. The reality is, however, that needs are terribly difficult to identify, since most, if not all, theories of need rely on some naturalist conception of human agent -- an agent who either can consciously identify and state all of her or his needs or whose "real" needs can be ascertained by some external process of analysis. (p. 316)

The question of androgyny and "behaviors that mark masculinity and femininity are socially constructed and are neither innate nor determined by biological substratum" (Malson et al., 1989, p. 4), that is, they remain current and generate sustained research inquiries. Epistemological theories of the 1980s are therefore posing questions among feminists and looking at their own "assumptions embedded in their own and most embedded productive insights" (Malson et al., 1989, p. 4).

Detractors of the hybrid ideology pronounce their positions from a pragmatic and moral stance, which holds that "such blending won't work because it requires unrealistically rapid, intimately personal changes; or that it shouldn't work because it violates the 'natural plan' evolved over the centuries" (Huyck & Hoyer, 1982, p. 54).

Whatever perspective is chosen from the many available to this writer, one prominent fact remains: Whether the perspective selected is one representative of radical feminists or the most conservative of social thinkers, agreement is almost universal that women face particular difficulties and barriers to employment in almost every field of endeavour, including the non-traditional trades.

## A Survey of Women in the Work Place: Their Realities

Kanter (1977) outlines three possibilities encountered by women working in the work cultures where men control the culture (Kanter's study applied to women in trades and technologies where women were in the ratio of 85 to 15):

> (1) women are highly conspicuous; (2) their presence exaggerates men's awareness of what they have in common; and, (3) women are treated as symbols of womanhood rather than as individuals. The resultant problem is a structural problem brought about by token numbers, which produces doubts about one's perception. (Kanter, 1977, p. 4)

It would appear that the academic foment and endeavours of the past two decades focusing on "gender" theories and on their implications for social policies have not brought about healthy balances and outcomes. According to the plethora of research to further study realities and practices as they pertain to work chosen by woman, the conclusions drawn in the last decade seem indisposed to reveal any indicators favouring "their sex."

Examined from a human rights perspective during a ground-breaking Conference for Women in the Trades, Day (1988) cites the following:

> What we have learned in the last twenty years is that discrimination against women is systemic. It is widespread, persistent, and entrenched in the ordinary operations of all the institutions of our society. Centuries of discrimination against women have made it normal. If an institution does nothing to root out the discrimination that is entrenched in its operations, it will, in the normal course of things, discriminate against women. No employer has to work at discrimination against women. It comes naturally. (in Braundy, 1988, p. 137)

Barriers for women, according to Iona Campagnolo's Key Note Speech to the Edmonton YWCA Conference for Women in Management (1989), designated the 1980s to be "a most bizzare and unsettling moment in history of the evolution toward equality of Canadian Women" (p. 1). Quoting Gilbert and Chesterton (1874-1936), the focus becomes a bit clearer as to the origins of the systemic discrimination women encounter:

> Tradition means giving the vote to that most obscure of all classes, our ancestors: It is the Democracy of the Dead! Tradition refuses to

> submit to the small and arrogant oligarchy of those of us who are merely walking around. (see Campagnolo, 1989, p. 5)

As a female "pioneer" and politician during the two decades previous to 1980, Campagnola also sees the very motion of social "change" to be "a primary enemy" and one that would resist the process of growing, especially as it applies to women's battle for equal rights, thereby threatening to undo the gains that have been won and reinstate the barriers to progress that once existed.

> As the economy tightens up and there are fewer good jobs in media [for example], women are losing ground rapidly in the . . . warfare of the language of equality, and the number of women employed becomes less. . . . the male voice is now once again heard more loudly and more impatiently in the land. There are strong forces at work attempting to reassign women to the status of permanent dependents of men. (p. 11)

This last hurdle presented applies as well to either full-time and equity wages for work chosen by women, as it does to the issue of abortion.

In 1973, at the time of the United Nations Declaration on the Elimination of Discrimination against Women, women constituted half of the total population of the world; women were obviously not a minority group numerically. It was during that meeting of all State Members of the United Nations that a commitment to the goal of equal rights for all men and women, respect for all, human rights, and fundamental freedoms without distinction to race, sex, language, or religion was made (United Nations, 1973, p. iii). Nonetheless,

discriminatory practices exist in connection with appointments, promotion, conditions for career services, retirement, and pension rights (p. 7). Women tended to obtain only secondary positions in most governments or administrations.

Employment opportunities for women are greatly affected by the economic situation of any country. During times of widespread unemployment and underemployment, women usually find it especially hard to obtain work in competition with men. Discrimination against women in these cases is generally based on the assumption that women do not need to work as much as men, an assumption that repeatedly has been proven false in most countries (United Nations, 1973, p. 20).

Peitchinis et al., (1989) elaborates on three motivations activating occupational and employment discrimination, as described in Becher's The Economics of Discrimination. Taken together, they may overwhelm the argument for the basis of barriers encountered by women entering non-traditional workplaces; separately, by virtue of their existence, they may contribute implicitly to barriers women find upon entering the trade occupations.

Discriminatory motivation of prejudice, tradition, and economic advantage are key systemic ways in which segregation can occur.

> Discrimination based on prejudice is of a personal nature whereby an employer does not

> wish to employ women or men do not wish to work with women, or customers do not wish to be attended by women. They hold negative judgements about women, which cannot be supported by competent evidence, but which are valid in their own minds. (Peitchinis, 1989, p. 24)

In Ontario, the Ministry of the Apprenticeship Branch and the Apprenticeship Committee of Local 27 of the United Brotherhood of Carpenters and Joiners, are aware of "young people, in general, and women in particular [being] discouraged from entering the construction industry as skilled workers" (Ontario Ministry of Skills Development, Skills Letter, 1990, p. 12). In order to promote enlightenment and challenge assumptions, this provincial Apprenticeship Branch approaches prejudicial discrimination toward women "from a straightforward economic standpoint . . . [which means that] if employers don't change their hiring practices, they will not be able to compete" (p. 12).

Braid (1989) and Braundy (1988) elaborate on the prejudicial level of discrimination by focusing on such trades as Boilermakers, where a female apprentice, taking her first year of school, found:

> Other students particularly hostile towards her and exhibiting this hostility by swearing at her . . . excluding her from any work activity . . . dropping things from heights while she was working below, [stealing] her test pieces, and eventually vandalizing her car. The teacher did nothing about it, [and finally the female apprentice] called in the RCMP, campus authorities took action. . . . the class was told they would all be thrown out if anything happened. (Braid, 1989, p. 26).

A generalized view of prejudice can be discerned by keynote speakers of the National Women in Trades and Technology and Employment Equity Conference held in British Columbia in 1988: "It is positively amazing how different women in different trades and technologies in widespread parts of Canada tell strikingly similar stories . . . [allowing] a portrait of the kinds of women who do this work to emerge" (Braundy, 1988, p. 1).

Other forms of discrimination useful in their discussion as they are encountered by women choosing non-traditional work are summarized from Peitchinis as follows:

> Discrimination based on tradition may not have the personal element but may be imposed on the employer, who may be inclined to act otherwise in its absence. (p. 24)
>
> Discrimination practised for economic advantage where an employer, aware of the discriminatory behavior, knows that it cannot be justified on economic grounds, but abides by the prevailing practice for economic gain including: different wages for men and women for the same work; assigning work responsibilities to women which exceed the specifications of their jobs and range of pay; failure to give women employment designations commensurate with their functional activities to justify their lower pay.
>
> Discrimination in the assignment of work responsibilities; discrimination in the make-up of policy-making committees.
>
> Under-utilizing capacities of women is also widespread within occupations attesting to the economic theory that postulates that in competitive markets women will move out of the employments in which they are under-utilized and seek jobs utilizing their capacities; equilibrium incapable of being achieved in markets where there is no competition ensures

widespread segregation practices for women (Peitchinis, 1989, p. 25)

Discrimination produced by "occupational crowding" (Bergmann, 1971, pp. 294-311) whereby discriminated groups crowd into certain occupations and become cross-identified with those occupations.

The primary and secondary market segmentation which sustains discrimination in the work place. The former is structured, organized into protective unions and associations, monopolistic and governed by internal rules of associations and enterprises. The latter is unorganized, crowded, highly competitive, unstable, subordinated and for the most part predominantly female, while the former is marked primarily by male domination. (Doeringer & Piore, in Peitchinis et al., 1989, p. 30)

The statistical discrimination hypothesis sees discrimination emanating from testing procedures designed to determine potential productivity where the testing procedures are biased against some groups, i.e., sex-biased, language-biased, culture-biased. (Phelps, 1972, pp. 659-61)

Implicit pay discrimination states that pay differences result from discrimination in access to social human capital -- access to education and training. This form of discrimination refers to women having been barred in the past from entry into some educational and training programs and were not given equal opportunities to develop their talents. (Thurow, 1975, p. 176)

Occupational discrimination takes the form limiting the entry into educational and training programs which lead to certain occupational qualifications.

Employment discrimination is found where women are not welcomed into certain work activities, even though they may have the requisite occupational qualifications.

Discrimination in the assignment of work functions found within enterprises and internal labour markets determines the nature and range of work experiences women receive.

Peitchinis (1989) also states that:

> The nature and range of work experience is the most critical criterion for promotions to high-level positions, discrimination in the assignment of work explains the virtual absence of women from senior positions in commercial, industrial, and institutional enterprises, including governments and governmental institutions. (p. 31)

Other forms taken by discriminatory practices include:

> Tendencies to require higher educational and experience qualifications from discriminated groups; uses of biased instruments and procedures in the determination of potential for employment, for promotion, and for assignment of work responsibilities; discrimination based on age, marital status, physical appearance, and colour of skin. (Phelps, 1972, pp. 659-61)

Traditionally held beliefs may also be found among what sociologists and anthropologists identify as myths. Long Laws (1976) identified four myths that aid in the maintenance of the previously described forms and motivations of discrimination:

1. The sexualization of work where the world of work is largely a man's world and into which women enter as subordinates and at their own risk.
2. Women and children are dependents to man for the family's material well being.
3. The imitation syndrome dictates that women seeking careers require male characteristics and deportment for survival in a man's world.
4. The teleological shibboleth holds that since women intend to marry, regarding marriage and family a major vocation, they are necessarily vague and indifferent about vocational preparation and the nature of initial employment. (pp. 33-49)

A decade ago, women represented 50.4% of the Canadian population and, of this percentage:

a) 60% of women 15 years of age and over were living in husband-wife families,

b) 6.3% were heads of lone-parent families,
c) 18% were independent (not living with their families),
d) 987,490 women as opposed to 693,640 men were living alone,
e) Among the husband-wife families, 56.9% had children,
f) Among the lone parents, 33.3% were widows,
g) 29.3% had husbands who were absent (including separations),
h) 26.4% were divorced, and
i) 11% were single (never married).

> The implications of this for the employment of women is that increasing numbers find it necessary to enter the labour market and remain in the labour market as long as their circumstances dictate. (Peitchinis, 1989, p. 37)

An overview of systemic hurdles encountered by women over the last two decades points to national and global realities for women whose needs for work and choices of the kind of work accessible to them remains problematic. What are the prospects for women in the last decades of the millennium?

The Alberta Advisory Council on Women's Issues established in 1986 regularly examines, researches, and makes recommendations on women's issues to the provincial government. The monitoring efforts of this Council yielded a current bit of research titled Employment Equity: Gaining Acceptance (March, 1991). The report affords a summation of the Canadian Bill of Rights, shedding both positive and negative light on the question of systemic barriers encountered by women in the work place.

According to the Council, the Canadian Bill of Rights was passed in 1960. Its mandate was to develop human rights law and enforcement practices (Alberta Advisory Council on Women's Issues, p. 9). As new grounds of discrimination were added, the original prohibitions against discrimination were added. These included race, religion, sex, age, marital status, and sexual orientation. "The [Canadian] Courts' interpretation of The Canadian Bill of Rights focused only on the intentions of government and not the effects of the legislation on the classes or groups specified" (Alberta Advisory Council on Women's Issues, 1991, p. 9).

By the 1970s, the inadequacy of the Bill of Rights became clear to women. The implied equality guarantees were lacking and were subsequently addressed by the Canadian Charter of Rights and Freedoms (1988), particularly in Section 15 which states:

> 15(1) Every individual is equal before and under the law and has the right to the equal protection and equal benefit of the law without discrimination and, in particular, without discrimination based on race, national or ethnic origin, color, religion, sex, age, or mental or physical disability.
>
> 15(2) Subsection (1) does not preclude any law, program or activity that has as its object the amelioration of conditions of disadvantaged individuals or groups including those that are disadvantaged because of race, national or ethnic origin, color, religion, sex, age, or mental or physical disability.

Section 15(2) was a significant new addition because it affirmed clearly that the equality envisioned by the

section would require addressing conditions of disadvantage (p. 9).

The 1970s in Canada was a significant decade for women. The Alberta Advisory Council on Women's Issues (1990) stated that "the influence of larger numbers of women in the workforce and their stronger representation in the political arena cause the beginning of change in the power structure" (p. 10). The 1970 Royal Commission on the Status of Women Report initiated voluntary affirmative action programs within the federal public service of one kind or another for women. Furthermore, with the focus on women, during the International Women's Year in 1975 (Alberta Advisory Council on Women's Issues), the "embarrassingly poor representation of women in the executive and senior management positions within the federal public service" (p. 10) continued to be obvious. Directives were issued whose objectives were for each federal department to show a matched proportion of qualified candidates of both sexes, and to report these annually for approval by the Treasury Board indicating annual target and action plans (Alberta Advisory Council on Women's Issues, 1990, p. 10).

Employment and Immigration Canada, by 1979, had made contact and encouraged over 1,400 private-sector employers to participate in employment equity programs. Five years later, the national figures of companies actively participating in this proposal number 71.

By 1980, the federal government had committed to the establishment of a program within the federal public service for women, persons with disabilities, and Aboriginal people; complementary action was encouraged within the private sector, with the results cited previously (Alberta Advisory Council on Women's Issues, 1990, p. 10). It can be surmised that the evolution of the Access Initiatives Branch within the Apprenticeship and Trade Certification Branch in Alberta appeared to surface as another direct outcome of this 1980 federal throne speech.

## A Time of Employment Equity: Elsewhere in Canada and Alberta

By 1982, under Lloyd Axworthy, the then federal Minister of Employment and Immigration, a Royal Commission on Equality in Employment, chaired by Judge Rosalie Abella, was underway with the following as the Commission's mandate:

> To inquire into the most efficient, effective, and equitable means of promoting employment opportunities for and eliminating systemic discrimination against [the] four designated groups in the Canadian workplace: women; Aboriginal peoples; persons with disabilities; and members of visible minority groups. (Alberta Advisory Council on Women's Issues, 1991)

Judge Abella coined the term "employment equity" to describe programs that remedy discrimination in the workplace, and to include measures to narrow the wage gap

between women and men, to create opportunities for women to move into non-traditional jobs, and to give consideration in the workplace for employees' family responsibilities (Alberta Advisory Council on Women's Issues, 1991, p. 11). It was soon found that the term "affirmative action" appeared to present a stumbling block in its association with interventionist government policies, thereby prompting the change in labelling to "employment equity," a term signifying "positive remedial programming in the workplace" (Alberta Advisory Council on Women's Issues, 1991, p. 11).

Under Flora McDonald, Minister of Employment in the Mulroney Conservative government, Bill C-62, An Act Respecting Employment Equity was tabled in Parliament in 1985 and became law the following year.

> Administered by Employment and Immigration Canada, Employment Equity Act requires that federally regulated companies who employ 100 or more employees implement employment equity; the same applies to federal Crown Corporations. Employment equity was also to apply to companies with 100 or more employees tendering for goods and/or services contracts of $200,000 or more under the Federal Contractors Program. The 1989 Employment and Immigration Canada Annual Report lists the changes which were made in spite of the low growth rate of 1.4% in the workforce governed under the Act. Women increased their representation from 40.9% to 42.1%; Aboriginal peoples from .66% to .73%; persons with disabilities from 1.6% to 1.7%; and members of visible minorities from 5% to 5.7%. The overall growth in the target areas was highest for women. The gain amounted to only 1.22%. (Alberta Advisory Council on Women's Issues, 1991, p. 12)

The Commission concluded that "portions of these 'very modest' gains could not be attributed to employment equity action" (p. 12).

The Commission's "modest gains" pronouncement obfuscates another reality. This reality appears also embedded within the very processes designed to overcome those barriers they were meant to eradicate. According to Day:

> Flora MacDonald, [and the alliance she had forged with representatives of the equity target group] were [in fact] unsuccessful in changing the Employment Equity Act . . . [for] the mere publication of the public reporting of data to [The Treasury Board of Canada] would . . . have no appreciable effect on the rate of change in the employers' workplace practices. In addition, the publication of the data, with the exception of a condensed report to parliament, consists of placing the data received from employers in 250 libraries across Canada . . . workforce profiles [weighing pounds] and pounds in computer paper [and] . . . whose meaning will be difficult to determine. The likelihood of these masses of obscure computer data generating sufficient public disapproval of the discriminatory practices of Canadian employers merely by the fact of their being available in . . . local libraries seems fanciful. (in Braundy, 1988, p. 142)

Employment equity was also the mandate of the Canadian Human Rights Commission who, in 1988, issued its operational procedures manual for ensuring compliance with it. Women's groups were neither informed about nor consulted with on the development of this manual. The manual states that:

> Once the Commission has analyzed the data with employers who show possible problem areas, the Commission will initiate a voluntary review; engaging employers to voluntarily review with

> the Commission to agree on voluntary goals and timetables and to commission monitoring. (Braundy, 1988, p. 142)

In the opinion of the then Chief of Human Rights Commissioner, Max Yalden, the approach suggested in this manual is "the best and fastest way to bring about results" (Braundy, 1988, p. 143). The procedure manual indicates that the Commission would be required to investigate a third-party complaint. In Day's summary remarks of this reality:

> This is a stunning reversal and in the face of . . . 15 years of experience with voluntary affirmative action programs in Canada, it is either profoundly naive or profoundly cynical and ignores the fact that voluntary programs which have no mandatory requirement to produce results have not produced results, and it throws the burden back on women and other equality seekers to file complaints and bring mandatory affirmative action programs into existence as remedies through the complaint process. (Braundy, 1988, p. 143)

The systemic exclusionary tradition hereby described remains firmly in place and attests to the fact that:

> There really are glass ceilings firmly and absolutely in place, designed to forbid women entry, and women [continue] to bang their heads on this invisible, unacknowledged and unaccountable barrier beyond which no "woman, idiot, or other incompetent," as judged and decided by men, is allowed to pass. (Campagnolo, 1989, p. 8)

In Alberta, legislation that adjudicates anti-discriminatory employment practices was introduced in 1985 under the Alberta Human Rights Commission. Its

mandate, introduced in 1990, contained these three guidelines:

> 1) To provide leadership in implementing employment equity policies and programs in the public service and government agencies;
> 2) To encourage the private sector to implement such programs; and,
> 3) To encourage employment equity programs in Alberta's educational systems and institutions. (Alberta Advisory Council on Women's Issues, 1991, p. 12)

As with previously described voluntary equity programs, implementation of employment equity under Alberta jurisdictions is also voluntary. According to the Advisory Council on Women's Issues (1991):

> The province has no formal program for encouraging employment equity in the private sector, though some employer examples which have include: Alberta Agricultural Development Corporation, Syncrude, the City of Calgary, the City of Edmonton, the University of Alberta, and the University of Calgary. (p. 13)

## Barriers Encountered by Women as: School-aged Students as Created by Peers and Parents

A 1990 study undertaken to examine attitudes and opinions and aspirations of young women in Grades 10 and 12 in Nova Scotia revealed that:

> There is the incredible gap between the young women's educational/career aspirations and their clear identification of the jobs they expect they will end up doing; lawyer/maid, astronomer/flight attendant, doctor/nurse, pilot/hairdresser, cop/cashier, etc. Lack of money and amount of education required formed the two greatest obstacles to pursuing a career with "nothing" and "children" making close seconds. (Technology and Operations Newsletter, 1991, p. 8)

Two chroniclers concerned with education-related media, MacKay (1991) and Bochner (1986) see the pervasiveness of popular culture and lack of equity in curricula to sustain the status quo of barriers women continue to encounter. Education through media, toys, novels, cartoons, and films model for boys and girls the realities of life. Toys such as the popular "Barbie" dolls have modelled women for children since 1959 as being on "career-tracks" such as:

> Working Woman, Contemporary Working Women, Modern Working Woman, showing these women to be variously: fashion models, teachers, ballerinas, Olympic athletes, aerobic instructors, T.V. news reporters, but in the 1980s these still did not include women in plaid shirts becoming truck drivers, or welders, or hewers of wood. (MacKay, 1991, pp. 50-51)

Bochner (1986) states that according to educators' findings and major surveys, the reality of today's female teenagers is deeply tinted with myth. Mass-media images, usually absorbed indiscriminately and without discussion, are considered to play major roles in this state of affairs. Forum discussions uncovered that:

> Stunning numbers of female students hold that a relationship with a man is the key to their security, in a "forever" marriage. Despite statistics revealing the contrary, many female students believe they will never have to work. When they do envision careers, they cast themselves as "super moms" who can easily juggle home, family and job, and afford nannies and annual European vacations. (p. 6)

Additionally,

> Teenage female students appear to be aware of the principles of sex equity and equal opportunity, but have mistakenly assumed that

> equality actually exists. They are totally unaware of the discrimination and obstacles they will face in making career and marriage choices. Young women have made little progress in their relationships with men, whom they see as the key to their security. Despite the stark realities of high divorce rates and the statistical probability that the majority of young women joining the work force continue to enter the three lowest paying sectors -- clerical, service, and sales -- rather than moving into the higher-paying, male-dominated career paths. No matter in what areas of employment women find themselves, most will carry the full responsibilities of childcare and household chores. (Bochner, 1986, p. 6)

Educators participating in the Forum also realized that:

> Both male and female teenagers are going through a particularly volatile period of physical and emotional change. They are swamped by peer pressure and feelings of awkwardness. Their need to be liked or accepted by friends pulls them away from adult authority figures and locks them into a pattern of conforming with their peers that determines the way they behave and think. These preoccupations make this period particularly challenging for parents and educators, who attempt to encourage young people to assert themselves and resist stereotyped roles. (Bochner, 1986, p. 7)

Yet, the Forum proceedings revealed that despite formal endorsement of sex equity by and the importance of women's studies to ministries of education, there remain abysmal gaps in implementation, compounded by pervasive, unofficial resistance from others in the education chain, including parents. Sexual discrimination continues to be perpetuated in schools and classrooms in subtle ways. And, like teenage students themselves, much of society assumes that equality is in place (Bochner, 1986, p. 1).

## Women and Apprenticeship: Educational Focus and Possible Barriers

Women face many unique obstacles to apprenticeship -- traditionally a male domain. In the early 1980s, women were entering apprenticeship programs and being accepted by their male peers, but breaking into a man's world required courage and self-confidence plus abilities required of all apprentices. Yet they had to contend with stereotyped attitudes of many of their co-workers. A Wisconsin study of apprenticeship programs in the early 1970s concluded that "the barrier to women is not the difficult or dirty nature of some of the jobs, but the breaking of taboos and the treading onto a territory that has remained the preserve of its male initiates" (Briggs, 1973, p. 15).

In Canada, as in the United States, vocational education helps prepare young people for apprenticeship by making students familiar with materials in the shop, techniques of the craft, and safety practices. In the United States, apprenticeship programs require that applicants have certain aptitudes, as demonstrated by passing appropriate, validated tests of which one is the Specific Aptitude Test Battery (SATB) tests for nine general aptitudes. These include: general learning ability (cognitive functioning); verbal aptitude; numerical aptitude; spatial aptitude, form perception (the ability to perceive small details in an object); clerical

perception (the ability to distinguish pertinent detail); motor coordination; finger dexterity; and, manual dexterity. Each battery tests different combinations of these nine general aptitudes because each occupation requires different specific abilities (Occupational Outlook Quarterly, 1983, p. 23).

Within the aforementioned decade, however, Herman of the U.S. Department of Labor (Women's Bureau) cited that the Vocational Education Amendments (1976) were required to legislate and reduce sex discrimination and sex-role stereotyping in vocational education programs.

Barriers which Herman described for women as well as for men involve sex discrimination, inadequate preparation, age restrictions, and harassment. The issue of inadequate preparation for women often occurs because very few girls take vocational education courses in high school, such as shop and mechanical drawing. Prior to legislation, girls did not take shop, mechanical drawing, or industrial arts, and active discouragement of young women in 1980 was still experienced by them from guidance counsellors and vocational education teachers (Herman, 1980, p. 4).

Following legislation, a number of apprenticeship outreach programs that recruited and placed women in apprenticeships devised pre-placement training in tool handling, terminology, and basic work procedures. These areas of vocational deficit constituted additional hurdles

to women, since boys learned these things in vocational education courses in school and/or informally by helping their fathers. Since skilled trade workers need to be physically conditioned to be able to stand, stoop, bend, handle tools, carry equipment, and work overhead or in cramped spaces, women who do not have this fitness had greater difficulty in managing the physical stress of some non-traditional skilled craft jobs (Herman, 1980, p. 4).

Age as barrier presents problems for women as well. Studies have shown that most women enter apprenticeship after they have already had some experience in the work force. This experience is often obtained in low-skill, low-paid jobs. By the time women in their late 20s or early 30s discover that skilled trades offer both opportunity and satisfaction, they are too old. Herman (1980) reports that the progress made in excessively restrictive age limits were mitigated by most state laws and by numerous unions which had also eliminated age restrictions from national apprenticeship standards (p. 5).

The umbrella term of harassment from male supervisors and co-workers presents a difficult barrier to women who want to work in skilled trades. All new apprentices have tricks played on them, experience name-calling and ridicule as part of initiation processes. Such hazing activities, however, as interference with work, opportunity to learn, or safety and health are

prohibited under the U.S. Department of Labor (Herman, 1980, p. 5).

Duo and Yuen (1985) further explored sex stereotyping in the labour force as a direct consequence of attitudinal barriers toward choosing vocational education; they also cite complex economic, social, and psychological barriers which students face in selection and attainment of vocational education programs (p. 25). While institutional barriers by society may have been removed, lack of changes in the attitudinal barriers prevents students from choosing non-traditional vocational programs which, in turn, produces socialized mind sets for both males and females. These, in turn, give rise to traditionally based values about sex stereotypes and occupational choices (Duo & Yuen, 1985, p. 26).

Bomboy (1979) states that for many years, vocational education was predicated on the assumption that males needed skills for work outside of the home, while their counterparts needed skills inside the home. This late 1970s' model of the "typical American family" (father working and mother at home) represented only seven percent of American families. The assumption was severely challenged due to women's increased participation in the labour force. Yet this was not mirrored in program choices within vocational education by either sex.

The effect of the 1972 Educational Amendments laws in the United States only marginally increased non-traditional enrolments of males and females in vocational education programs. Rieder (1970) reinforced the debate by stating: "Because vocational enrollments faithfully mirror the occupational segregation by sex in the labor force, it may be inferred that vocational education has done little to eliminate occupational segregation" (pp. 27 - 30).

Mitchell (in Duo & Yuen, 1985) found that at the secondary school level and developmental stage, boys and girls reflect high sex stereotyping in both their occupational aspirations and occupational choices. While girls at this stage in life believed their occupational opportunities to have broadened for females, most actually still limited their choices to such traditional occupations as nursing, teaching, and secretarial work (p. 27).

A mid-1970s' study by Smeaton and Wagner (1976) in Wisconsin on barriers to enrolment in post-secondary vocational, technical, and adult education noted that "females are neither encouraged nor desirous of entering non-traditional programs" (ERIC DOC).

Ekstrom (1972) sheds light on the psychological factors in a woman's decision to enter post-secondary education (ERIC DOC) in the first place. The author felt

that this decision illustrates a woman's perception of and preference for her role in society.

Commensurately, the U.S. Department of Labor (1981) and the U.S. Commissioner of Education (1979) echoed this phenomenon and concluded that both sexes are still concentrated in traditional occupations, with females in fewer occupations than males.

## Education as a Detractor to Barriers

Belenky, Clinchy, Goldberger and Tarule (1986) resonate much of the educational findings earlier examined in this study. To Belenky et al., the "psychological literature concerning the factors promoting cognitive development" reveals that "doubt" plays a more prominent role than "belief," although states of "cognitive conflict" have the effect of challenging what is "believed" and can lead to cognitive growth. Women, on the whole, found their learning experiences of being doubted debilitating rather than energizing (p. 227). Moreover, the research findings of Belenky et al., relate that "women are already consumed with self-doubt, doubts imposed from outside seem at best redundant and at worst destructive, confirming the women's own sense of themselves as inadequate knowers" (p. 228). Clearly, these researchers point to empirical educational studies, such as those produced by Kohlberg and Mayer (1972), as primarily done by and "on" males and, while Belenky et al.,

agree that the proper purpose of education is to assist students with their stages of maturational growth intellectually, epistemologically, and ethically, they propose more research be done "on" women (pp. 228-229).

Citing also Paulo Freire's "banking model" which reinforces the "power of oppression" in educational settings where students are merely potential repositories of facts and memorized data, these educators propose educational initiatives that employ the problem-solving modes. Alluding also to Jacobs' (1979) presentation of Women Writing and Writing About Women, they concur that educational practices ought to "replace the separate with the connected model, [and] spare women the alienation, repression, and division [that] schooling currently confers upon them" (pp. 228-229).

Pratt (1987) states that classroom learning in Canada today closely resembles that of 20 or even 50 years ago. Progress is being made by teachers' organizations rather than faculties of education, and research in instruction is bound to gradually inform instructional practices and improve student learning (p. 613).

Yet, Lips (1987) informs the reader that research shows that Canadian female high school students tend to plan to marry and have children, and to assume that their employment will have to take second place to domestic responsibilities. Thus, female students aim for careers that will fit fairly painlessly into traditional patterns.

Broadening female students' awareness of the vocational choices available to them is but one of a number of ways this research recommends toward reversing the sustained and unrealistic view which young women have of their future career choices.

Designing and running educational systems that promote equality between the sexes, however, is an enormous task, for this also means increasing their sense of their own power within it. Consistent with this mode of thinking is that students see, through role models within the school systems themselves, that women can and do teach the higher levels of mathematics, science, and technology, and that the non-verbal messages communicated by the structure of the educational system be consistent with the verbal one in favour of equality.

## Related Research

Giele-Zollinger, Smock and Chapman (1977), in their research of Women Roles and Status in Eight Countries, progress beyond merely stating the obvious in the reporting of the hindrances found and representative of gender job choices data. These researchers hold that:

> The realization of true equality of educational opportunity depends both on removal of barriers to the advancement of women, in the form of inadequate facilities and discrimination in admission as well as on the transformation of attitudes and expectations for girls. Active intervention by the state can more easily redress the former, e.g. [sic] government can lessen the financial burden of education for

> women, reform curricula and counselling to encourage girls to formulate non-traditional career goals, and centralize educational systems to ensure greater equivalence of educational experiences of girls and boys. And since sexual disparities in educational opportunity spring as well from deep-rooted cultural notions relating to differences between the sexes, . . . girls are socialized from birth to have quite different goals from men and are systematically taught to subordinate all other considerations to making a good marriage and raising children. Unless this process of inculcated patterns of behavioral norms, values, and orientations which often inhibit educational advancement for girls change, and fundamental cultural determinants of inequality are changed, true equality of educational opportunity cannot be realized. (p. 417)

The research of Giele et al., (1977) also cautions that:

> Further technological evolution is inevitable. The consequences of these economic changes for sex roles [remains] subject to human determination. Therefore, by directing a concerting effort to address women by giving them the same opportunities as men to train and prepare for industrial and vocational openings; by eradicating the sex-typing that conveniently reserves the management positions in professional and vocational fields for men, and by providing child-care facilities that would reduce the burdens of domesticity -- all these would lessen women's liabilities they've suffered. (p. 415)

Ekstrom (1972), Ellis (1977), Thomas, Christie, Colvin and Denbroeder (1979), and Westervelt (1975) would dispute the viewpoint held by Giele and colleagues since they also found that "women's internal psychological barriers of low self-esteem, poor self-concept, fear of success or failure, discrepancies between vocational aspirations and role conflict . . . all contribute to the major deterrents to female entry into these vocational programs" (Duo & Yuen, 1985, p. 29). Duo and Yuen

reported that national employment policies had been enacted to eliminate sex bias and sex role typing. Federal legislation was enlisted to aid in the removal of institutional barriers to workers aspiring to non-traditional careers (p. 28).

The inclusion of all societal factors, as already examined, acting as impediments to women's entry into the realm of non-traditional work seems clear. Yet the influence of significant others in women's lives requires examination also. Handley and Walker (1978) and Jolley (1975) conducted a number of studies on the attitudes of parents, teachers, and counsellors, and postulated that these were also factors limiting students' choices of non-traditional vocational programs and traditional and non-traditional occupations (Duo & Yuen, 1985, p. 28). Kane et al., (1976) and Lewis and Kaltreider (1976) found that among "significant others," parents have been found to most influence their children's career choices, followed by peers and school personnel.

Nevertheless, Campbell-Trane and Budke (1980) and Kane et al., (1976) hold that despite parents' predominant influence, lack of special occupational information limits the parents' ability to assist their children's career choices, making parents' roles more those of support and encouragement, rather than influencing their decision-making (Duo & Yuen, 1985, p. 28).

Duo (1982) and Penn and Gabriel (1976) saw peers as less influential than parents, but more influential than teachers and counsellors. Typical school personnel had not been very much involved in students' non-traditional program selections. The results of studies have indicated that teachers and counsellors often discourage students from entering non-traditional programs, tending to direct girl and boy students toward different careers. Schlossberg and Pietrofesa (1973) and Lewis and Kaltreider (1976) saw counsellors encourage students to enter non-traditional programs only if they first indicated a non-traditional career interest, and then only after "probing" first to be certain the interest was serious.

Among other studies, Hawley (1972) found that there was a significant relationship between the careers that women choose and their beliefs regarding men's views of the feminine ideal, attesting to the importance of male support for females electing to break away from traditional sex roles in order to pursue non-traditional careers.

Such practical barriers as lack of information and inadequate educational preparation were numerously cited in the literature. Research into these aspects in the 1970s revealed that women felt afraid of being unfeminine and of jeopardizing their relationships with men (Pfiffner, 1972). However, the shift away from gender

determination toward career planning and job preparation in the 1990s seems promising.

Research into the importance of preparing women for non-traditional careers by providing them with an adequate background in mathematics and sciences has become formidable in both the United States and in Canada since 1985. In Canada, a First Ministers' meeting committed itself to coordinate an inter-governmental approach to the goal of economic equality for women. In 1987, this same august group agreed to a joint meeting of Federal/ Provincial/Territorial Ministers responsible for the Status of Women and Education. The meeting focused on the participation of girls and women in math, science, and technology (Status of Women Canada and Manitoba Women's Directorate, 1989, p. 1).

The interrelated nature of women's lack of access to science/math and the various exclusionary consequences which this currently has in the workplace, and which will continue as technology begins the process of making jobs obsolete, presents important cautions for this study. Integral issues and clear recommendations flow from the Status of Women's findings in Participation of Girls and Women in Math, Science, and Technology.

As of 1988, one-half of the female-headed, single-parent families (56%) were poor, as opposed to 22.9% male-headed, single-parent families (National Council of Welfare, in Status of Women Canada, 1989, p. 9). Six in

ten children are being raised by sole-support women and they are poor. Seventy-seven percent of the aged poor are women. Moreover, "while women with low education levels experience the greatest disadvantage, women generally get less value out of their education than men" (Canadian Congress for Learning Opportunities for Women [CCLOW], 1989, p. 9).

The above-cited organization (CCLOW) in 1988 found that for the 1986/87 fiscal year, except in hairdressing, cosmetology, and cookery, women were severely under-represented in apprenticeship programs throughout Canada (totalling only 4.02% of all apprenticeship trainees).

A 1984 Statistics Canada survey indicated that employer-paid training for women employees occurs at considerably less than half the rate of employer-supported training for men (14% versus 35%), which showed that most government and private-sector sponsored training continues to direct women into relatively low-quality areas of work (CCLOW, 1989, p. 9). The CCLOW recommended that for any individual woman, the single most significant correlative factor with high quality jobs is high levels of education and training, yet women remained occupationally segregated, increasingly clustered in clerical, service, and sales jobs.

Both the body of knowledge taught and the process through which that knowledge is transmitted is an important determinant in women's educational experience.

In 1982, an Ontario board of education undertook a study which reviewed Canadian Ministry-approved textbooks. The study observed the following key elements: there were few males or females in non-traditional roles; women were shown in few positions of leadership and authority; use of sexist language was extensive; in older texts, more males than females were evident in pictorial and printed content (Toronto Board of Education, 1982, p. 10).

The 1988 study by the Canadian Teachers' Federation analyzed gender-based literature in schools. The study found that the exclusion of women's presence from curriculum materials, the use of female-excluding language in texts and by teachers, and the failure to integrate women's experience into course content mirrors absence of perception to female students. It gives them the message that their gender is both peripheral and inferior (Canadian Teachers' Federation, 1988, pp. 5-6).

The same study of mathematics textbooks, materials, and course content also found a reinforcement of the perception of mathematics as being a male domain, female mathematicians' contributions being seldom mentioned within texts. Most teachers of mathematics in secondary schools are male. Math textbooks and materials reflect predominantly stereotyped interests and occupations.

A 1986 Quebec Science and Technology Council report states that the present optional curriculum format

with its prerequisite courses and opportunities for specialization in secondary school is a factor in making premature choices irreversible. These limiting premature choices, and narrowed future options, are particularly prevalent among girls and women, suggesting that basic training be standardized, that options be limited, and that accessibility of programs be increased to circumvent premature choices (Government of Quebec, 1986, p. 11).

The Science Council of Canada's (1984) study of women and the hurdles they encounter in the study of math and science makes note of "the tendency for girls in single-sex schools to study physics, chemistry, and math more often than do co-educated girls. This highlights the complexity and strength of influencing factors in educational choices" (Government of Canada, Supply & Services, 1984, p. 13).

The conceptual framework that the roles of mathematics and chemistry and physics courses in secondary schools play is known as the "critical filter." Without successful completion of these three chief courses, 85% of the post-secondary programs are closed to prospective students. The under-representation of women in these courses, and their over-representation in the clerical, sales, and service sectors act as "critical filters" filtering more girls than boys (Canadian Teachers' Federation, 1988, pp. 5-6).

Sadker and Sadker (1988), delving into the curriculum content of research, found that at all grade levels and in all subjects, male students were involved in more teacher interactions, received more precise feedback, remediation, criticism, and praise. The result is that females and males not only enter post-secondary studies with considerably different educational histories, but that girls' educational environments are not neutral--rather, they are actively damaging (p. 10).

In a 1990 collection of essays on Canadian women and science, Lafortune (1990) suggests that professionals in education should develop strategies that include attitudinal differences with regard to math. Such an approach would have a greater chance of reaching girls, who do not really relate to the way math is currently presented as "competitive, rational, objective, rigid, lacking in emotion":

> We should challenge girls who choose traditionally feminine careers under the pretext that they are not able to succeed in math. Encouraging, approving, stimulating, and listening can help us to know the real reasons which motivate them to select such programs, and help them to re-orient their choices. (p. 271)

Hall and Sandler (1982) suggest that patterns of student-teacher interaction established at lower school levels set the stage for expectations and interactions in post-secondary levels. The differential climate based on gender in classrooms creates "chilly climates" for girls and women, with the consequence of profound negative

impact on women's academic and career development. The cumulative effects of differential treatment can be damaging to both individual females and the educational process, because when girls and women are discouraged subtly or overtly, contribution of half of a class of students is lost. These researchers also add that teachers who introduce or reinforce perceptions that some subjects or fields of study are "masculine" or "feminine" may contribute to students' shying away from courses or majors considered inappropriate.

The Science Council of Canada (1981) stated that:

> Many girls will lower their aspirations when confronted by the explicit or implicit beliefs of adults. Counsellors' discouragement of girls and women from pursuing math, science, technology or "nontraditional" careers may take the form of failure to inform or failure to encourage such pursuits, as well as more outright attempts to discourage them. (p. 71)

The literature also reveals that a dearth in both policy and practice of the inclusion in teacher training of a knowledge of the sensitivity to: "chilly classroom climate"; and the existence, causes and consequences of the under-representation of girls and women in math, science, and technology continue to exist.

The research findings cited in Status of Women Canada and Manitoba Women's Directorate (1989) are that counsellors expressed some hesitancy about encouraging students in career options which their parents might find objectionable and that further counselling was advised when girls wanted to pursue non-traditional careers.

Counsellors also appeared to have a negative effect on girls wanting to pursue mathematics courses (p. 13).

Glaze and Ellis (1980), studying high school girls, suggested that participation of girls and women in math, science, and technological fields depend in large measure upon:

> Their perception of the need for and usefulness of these subjects to their lives and work;
>
> Their knowledge of the necessity to plan a career for themselves;
>
> Knowledge or awareness of available careers, including non-traditional occupations;
>
> Effects of role models and parental attitudes; and,
>
> Increased knowledge of current labour force participation practices of women, as a majority of girls in their study expressed expectations of remaining in the labour force for only a few years, get married, and then retire from the labour force upon the birth of their children. (p. 1)

The researchers note that "it is hardly surprising that female students' subject choices and plans for the future are often unrealistic and not in their own interests" (Glaze & Ellis, 1980, p. 7).

A combination of findings of research by Avebury for the Science Council of Canada, and the Canadian Advisory Council on the Status of Women report some insightful correlatives, such as:

> The correlation of age with attitudes towards non-traditional work changes from positive to negative attitudes toward non-traditional work as being most marred between 8 and 12 years of age. (Avebury, 1985, p. 69)

> The value of role modelling ought at this developmental stage to be enhanced in order to make more appealing women's participation in non-traditional fields. (Science Council of Canada, 1981)

> Where girls made non-traditional job choices, 19% tended to be the younger respondents, to have mothers in the paid labour force, and to be from higher socio-economic status families. (Canadian Advisory Council on the Status of Women, 1985, p. 69)

Another, more recent, study of 3,000 Grade 7 girls commissioned by the American Association of University Women, found that the number of girls who had high self-esteem plummets 23% between elementary school and middle school, and that twice as many girls lose their self-esteem as do boys when they enter adolescence. At the Grade 7 level of development, girls may encounter the most damaging year in their lives, and by the time girls enter high school, only 29% of female students say they are happy with themselves, compared with 46% of males. Girls are also likely to report that they are "not smart enough" or "not good enough" for certain careers. The study also found that adults, family, and school have the greatest impact on teenagers' self-esteem, and not peers (Washington Post, 1991).

Commensurately, Lips (1987) also sees the achievement of consistency in curriculum content to incorporate the emerging body of scholarship on women and on gender roles. Simply providing courses on women's studies as options will not suffice, and courses in history, English, geography, social studies, and science

should be oriented in ways that avoid masculine biases and include significant material on women (pp. 300-301).

Lips (1987) also expresses strong recommendations that educators assist female students to analyze and confront present and future conditions that make it more difficult for women than for men to aspire to demanding careers: the reality that young women still have to, in all probability, support themselves and, perhaps, their children without a male partner's assistance (p. 299).

Perry (1989) and Weber (1988) examine the strengths of renewed vocational education and teaching methods in the United States. Extolling its merits, these writers view the integration of basic academics with hands-on learning through broad clusters of courses such as health sciences or electronics as having relevance for students who learn best through tactile channels. The practical application of knowledge for students whose learning styles, interests, and goals are less abstract than college-bound students are thus better prepared by learning programs that form closer ties to businesses and community colleges so that students can easily make the transition to work or college.

Weber (1988) sees those students who are at risk particularly vulnerable to such demographic realities as employee education and retraining, which will be an over-arching agenda item in the United States until the year 2000. Allied closely to this urgent vocational

educational need is the burgeoning adult education market. It also requires market consciousness from vocational schools that directly supply the labour market demand. Perry (1989) describes such school and industry initiatives as those piloted by community-based companies who provide equipment, mentors, on-site labs, and summer jobs for students as a way of tying the workplace to a decent future for them.

Both researchers concur that vocational education programs also offer students the chance to prove they can excel at something, by providing them individual and small-group attention, task-oriented, interpersonal communication, opportunities for reinforcing basic skills, the necessity for making decisions, and working toward reachable goals. While neither specifically focuses on young female populations, implicitly they include it.

The foregoing findings in the research literature are better understood when examined against the backdrop of Gilligan's (1982) study of developmental stages of adult women. Gilligan traces women's earlier developmental stages to ages 10 and the teen years during which time a silencing of girls' voices occurs. Gilligan's study uncovered the following:

> The recurrent problems in interpreting women's development and the connection between these problems to the repeated exclusion of women from . . . critical theory-building studies of psychological research, and thereby uncovering the different modes of thinking about relationships and the association of these modes with male and female voices . . . [and] the

> disparity between women's experiences and the representation of human development throughout psychological literature. Instead, the failure of women to fit existing models of human growth may point to a problem in the representation, a limitation in the conception of human condition, an omission of certain truths about life. . . . In the interaction of experience and thought, in different voices and the dialogues to which they give rise, (of her particular study focus: conceptions of self and morality, experiences of conflict and choice), in the way we listen to ourselves and to others, in the stories we tell about our lives. (pp. 1-2)

Gilligan's (1982) central research assumption was that "the way people talk about their lives is of significance, that the language they use and the connections they make reveal the world that they see and in which they act" (p. 2). Nearly a decade later, the literature continues with the need to enumerate statistical absence of women in the workplaces where women's choices were eclipsed either by short-sighted school curricula, media-recycling of gender stereotypes, and the ghettoization of women in equally stereotypical job pools. When silencing of girls' voices happens because they perceive their voices to be hurting others, or by using them being hurt by others, or simply being afraid of not being heard at all, barriers inevitably begin to grow. When women encounter barriers and begin to own them, these barriers become entangled in a process of learned helplessness.

Gilligan (1982), not unlike previously noted feminist scholars, reinforces the bedrock of issues faced as hurdles by women who choose the non-traditional work

path. Central to the issues is the actual epistemological approach which presupposes observational biases where the male life is the norm. Gilligan (1982) cautions:

> At a time when efforts are being made to eradicate discrimination between the sexes in the search of social equality and justice, the differences between the sexes are being rediscovered in the social sciences. This discovery occurs when theories formerly considered to be sexually neutral in their scientific objectivity are found instead to reflect a consistent observational and evaluative bias. Then the presumed neutrality of science, like that of language itself, gives way to the recognition that the categories of knowledge are human constructions. [The outcome of this construction is] developmental theorists projecting a masculine image and trying [thereby] to fashion women out of a masculine cloth. (p. 6)

Researcher and educator, Brooks (1986) conducted a national study of Needs Assessment of Girls, involving 300 adolescent girls aged 13 to 18. The results of the study found that:

> Around ages 10 or 11, girls stopped connecting the effort they were putting into something with the result. They felt whatever happened to them was happening from some outside force. If they did well on a test, it was because the teacher liked them, not because they had worked hard. Learned helplessness starts with disassociating yourself from what you're doing. At around 10 or 11, the girls start to deny their own style. They probably have their own gifts, but they turn against themselves and when they start to believe it and there's a loss of motivation, this leads to fears and anxiety and depression [and a concomitant] feeling of not being in control of our lives . . . denying their styles, for example, in math [can] generalize out into their life. Whereas, with boys, if it's in math or shop that they're not doing well or are experiencing this learned helplessness, it just stays in this one area. It doesn't generalize out into their whole lives. Yet, [it is] with

> this cycle that girls start to become silent. (Brooks, 1988, pp. 42-43)

Brooks (1988) describes this silence and vulnerability as continuing into the late teens and early twenties. Relationships with others become most important for young women as they find out who they are through self-identification. Two sets of rules become established for young women at this stage:

> One set for other people, and one set for themselves; the two which must be juggled always. Breaking out of themselves begins when they start to go out to a group of other women or other people. For women whose choice of work is in the trades, pre-trades training courses help them to get out of themselves. This setting of training brings the separate individual self together with relationships with people; a very difficult, if not impossible occurrence during adolescence when separation and disconnection from relating is most threatening. (p. 42)

Brooks, citing Gilligan's work, traces women's inner voice and feeling of separateness into two other stages of their development:

> The second stage begins when young women no longer see that being different and separate is not a disconnection from others. Instead of two rules, one rule now applies to themselves and others through social participation that is equally fair to themselves and others. Stage three is a kind of inner judgement that women begin to listen to. Rules no longer apply. The mature woman now finds herself grounded by the situation or the context in which she finds herself. The culmination of these stages have more to do with a woman's experiences and what she does with them. For those women in the trades, their settings have demanded much of them and for those reasons they must listen to their own judgement and encouragement. (p. 42)

Kadar's (1982) findings, based on a 1981 Woman in Trades questionnaire to ascertain whether or not most women have experienced some form of sexual harassment on the job, campus or streets, showed that 92% of responders had been sexually harassed; this bears further testimonial that sexual harassment is a pervasive societal issue not specific to non-traditional trades. A similar survey conducted by Kadar through the Alberta Union of Provincial Employees (AUPE) resulted in 80% of female responders affirming some form of sexual harassment experience (p. 171).

A Women's Bureau, Labour Canada report profiling Canadian women in the trades, found that women reported their experiences of sexual harassment as being the "hardest thing to deal with" either on the job sites or as direct outcomes of their work choices in their private lives (Braid, 1989, p. 44).

Official solutions available to women can include union grievance, complaint notification to employers or Human Rights Commission, and/or legal recourse. Kadar (1982) states that "most of the official solutions initiate an adversary process requiring the woman (in many instances) to defend herself against the accusations of the harasser" (p. 172). This author also points out that:

> All victims relinquish a certain amount of control as soon as they approach an official public body, and women, already vulnerable, perhaps jobless, perhaps threatened, experiencing a lot of self-doubt, [become] easy

> targets for lawyers and union representatives who choose to defend the harasser. (p. 172)

Braid (1989), Beauchamp (1988), and Kadar (1982) revisit the Supreme Court ruling that overt and subtle discrimination be arrested through attainment of the "critical mass" concept, whereby it will be more and more difficult to discriminate against larger numbers of women and harass them. Other intermediary strategies offered by these authors include:

1. Confront the harasser, and firmly demand an end to his behavior.
2. Put your statement to the harasser in writing and demand a reply.
3. Let your trusted co-workers know; see if there are or have been any other cases of sexual harassment in your workplace.
4. Keep a diary of all events: time, place, how it happened, the conversation that transpired. Look for reliable witnesses to corroborate your story, and not your conversations with them.
5. Try a sympathetic person at personnel, the harasser's supervisor, a union steward, and examine all company and union policy. Follow up meetings with memos, and keep copies for your own files.
6. Keep a record of any changes in your duties or in evaluations of your work (both verbal and written). (Kadar, in Fitzgerald et al., p. 173)

Beyond personal solutions, these writers advocate access and use of the Civil Code, the Criminal Code, and the Human Rights Commission as official remedies (p. 173).

Triggs (1987) sees pre-vocationalism establishing itself among its practitioners as something distinct from other educational philosophies, partially because one of its features is that it draws on staff having a variety of backgrounds, a variety of locations within the profession,

and a variety of induction processes leading them into it (p. 48). Triggs also sees industrial demand for workers of the future to be capable of ever-increasing changes that presuppose knowledge of basic principles, new task analysis, learning how to learn, and learning to organize one's own learning in such a way that personal learning styles may be used to maximum effect.

Triggs' further research in 1988 examined age ranges and understanding of work attitudes and school. In conducting this research, Triggs found that while attitudes to work experience remained positive throughout schooling, dissatisfaction with schooling itself increased. Three orientations to work experience were therefore developed by this researcher:

1. As interesting but marginal addendum to a topic or project organized around educational aims. (p. 4)

2. As central element in a school-based enterprise geared to educational aims. (p. 44)

3. As training core in a project aimed primarily at vocational skills competence taught largely in the workplace. (p. 48)

Triggs (1988) further states that pre-technical or prevocational or work experience can be accepted as a central curriculum element, but this need not imply that it is closely related to overall educational aims (p. 4).

According to provisions of the Canada/Alberta Agreement on Training, signed on December 19, 1986, a joint study was conducted of the Alberta Apprenticeship Training Program. The study was collaboratively carried

out by the Labour Marketing Information and Planning Division of Alberta Career Development and Employment and the Edmonton Regional Office of the Canada Employment and Immigration Commission (Alberta Career, Development & Employment, 1987, Canada-Alberta Study on Apprenticeship Training,[1] p. 1.1). The chief purpose of this bilateral study was to develop joint recommendations concerning the funding of apprenticeship training in the province and to determine if equitable access to this type of training was available to anyone who wished to participate. One of the major objectives of this research was "an assessment as to whether or not there are barriers which discriminate against and prevent fair participation of women, Natives, disadvantaged persons and visible minorities in the Apprenticeship Program" (Bilateral Study, 1987, p. 1.1).

A significant finding of the Bilateral Study was that no comprehensive record was maintained on the participation of designated groups in the apprenticeship program. Records maintained by Apprenticeship and Trade Certification for 1987 show that of the 18,500 apprentices registered, eight percent identified themselves as being female, one percent as Native, and 0.1 percent as disabled (Bilateral Study, 1987, p. iv).

The researchers found that there was no evidence of any barriers to the participation of any individual to

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[1]For the purpose of this report, the short title Bilateral Study will be used when reference is made to the Canada-Alberta Study on Apprenticeship Training.

apprenticeship, providing an employer is willing to enter into an agreement of indenture with an apprentice. Some of the barriers which exist beyond the apprenticeship program include: "(a) consideration of apprenticeshiple occupations as a career choice; (b) acquisition of apprentice employment; and (c) successful completion of classroom training" (Bilateral Study, 1987, p. 4).

## Survey Instrument: Background Demographics and Barrier Implications

> Social change in the industrialized countries has been remarkable during the past few years for both its pace and scope. Nowhere is it more important than in the changing role of women throughout society and especially in the job market. (Organization for Economic Co-operation and Development [OECD], 1979, p. 15)

So begins a document which indicates the pervasive nature of change in the modern world and the necessity for dealing with it. Change, according to some major theorists, has in fact become the one major constant for current world inhabitants.

The paper goes on to document some of the major forces for change currently at work in Canada and that thereby influence the subject matter of this paper; as the OECD puts it:

> Among them are educational opportunities for both women and men and the increased levels of income enjoyed by most families. . . . The trend towards greater participation of women in the labour force and the growing economic importance of women in modern society cannot be dissociated from the rising demand for equal

> treatment and equal employment opportunities. (OECD, 1979, p. 15)

Closer to home, the Alberta Advisory Council on Women's Issues documents similar concerns. According to the Council's newsletter released in May of 1990, the following demographic facts (along with a number of others not cited here) apply:

> Between 1990 and 2000, the number of jobs will grow at a rate of 1.5 percent per year.
>
> Women have earned more than half the Bachelor's degrees granted since 1981, and the proportion is still increasing.
>
> The number of women pursuing mathematics and science degrees is increasing dramatically. The number of women studying engineering is growing very slowly, but the proportion in chemical engineering is significantly higher than in other engineering disciplines.
>
> Canada, like all industrialized countries, will experience labour shortages through to the next century as the number of jobs expand and the labour force declines. The competition for skilled people will be very intense.
>
> In the last decade of this century, white males will make up less than 20 percent of new entrants to the workforce.
>
> New entrants to the workforce will be predominantly women as the proportion of women who work continues to rise.
>
> Immigrants will increasingly be visible minorities who are well educated.
>
> Women and visible minorities will likely interpret a low level of representation of people like themselves in any organization as evidence that the organization is favouring other groups. Such organizations will not be preferred employers for 80 percent of new entrants to the workforce. (p. 5)

In light of the previous statements, it becomes obvious that consideration of the position of females within the apprenticeship trades is important. The OECD shows a participation rate of females in the Canadian paid labour market of 50% in 1970 (OECD, 1974, p. 17). More recent data submitted to the Alberta Career Development and Employment suggest that the participation rate of women in the labour force had risen to 62.1% as of 1988 (Simmonds, 1988, p. 1). Given that current participation rates in the non-traditional areas can be expressed largely by single-digit percentages, it becomes obvious that some strategy must be developed to attract women to the trades and to make the trades accessible to this growing labour segment within Canadian society.

## Summary

The literature documents the history of apprenticeships in the Western Hemisphere over a span of four thousand years. Proceeding from ancient and medieval roots, it traces the history of the trades movements in Canada, using particular reference to apprenticeships in Alberta. Included within the parameters of the study is an analysis of equity issues and the status of women as it relates to apprenticeship programs.

Delineations are presented of such important formative ventures in Canadian apprenticeship developments as the CPR/CNR industrial training of Canadian

apprentices, closely followed by the Royal Commission on Industrial Training and Technical Education of 1913. As a result of input from industry, employers, tradesmen, union groups, the first dual system of technical schools in partnership with governments were established in 11 trades that were driven by the railroads.

The study traces government legislation, primarily at the Federal level throughout the three decades beginning in 1920. The Youth Training Act of 1939 allocated $4.5 million for training of unemployed youth and its provisions contain the first attempt at provision of equity for women. Women's equity had been largely unrealized prior to 1942. The Vocational Training Co-ordination Act of 1942 was then instituted as a crash program to provide services to war veterans returning to the civilian work force.

Between 1944 and 1945, significant changes for Alberta apprentices occurred. It was a time of inception of the Apprenticeship Act and the Apprenticeship Agreement. The creation of these pieces of legislation led to the necessary agreements between the two levels of government for funding of apprenticeship training. Other legislation that significantly impacted Alberta's apprenticeship system included: Trades Qualification Act 1935; Welding Act 1941; Manpower Development Act, 1976; Apprenticeship Training and Certification Act, 1985; and the Apprenticeship Training and Certification Act, 1991.

Between 1954 and 1958, Alberta's Apprenticeship Branch received within its mandate the Interprovincial Standards Program also known as the Red Seal Program. The program would allow tradesmen in Alberta and other provinces freedom of movement throughout Canada in order to meet labour-market needs.

The Review Committee of 1987 was structured to examine the state of training and certification of the skilled workforce and to identify needs and directions for the legislature. It was also to recommend proposals based on submissions from stakeholder groups and a wide range of Albertans. As a result, 33 trades saw compulsory apprenticeship training abandoned.

Federal initiatives, in 1982, saw the establishment of a Special Field Unit for natives, handicapped, and incarcerated workers in an attempt to redress imbalances in the workplace. Re-direction and re-identification of this unit resulted in the access Initiatives program, implemented in 1987-1988. Access Initiatives became responsible for the process to redress the problem of service delivery to the female population.

The literature also investigates the provision of equity to women through analysis of trade registrations in Alberta. After identifying the differential rates of access for men and women, it turns to the extensive identification of systemic discrimination in the literature.

A number of theories are examined: personality theories as researched by Holland, socialization theory, and Erikson's concept of role generativity as applied to "pioneers" in male-dominated occupations. Comparisons are drawn to societies with socialistic structures, as well as less advanced economies, as to their respective opportunities available to women.

Workplace barriers are examined utilizing North American literature of the 1970 and 1980's era, with particular emphasis to Canadian and Albertan data where available. The impact of legislation such as Bill C-62, an Act respecting Employment Equity, and the Access Initiatives Branch on female access are examined.

The literature then documents the evolution of the apprenticeship system in Alberta in its historical context with express reference to the provision of gender equity. Summarily, the study attempts to create the data and background necessary to probe the issue of gender equity as it currently exists and as perceived by pioneer women in male-dominated apprenticeship trades in the 1980s.

The writer was particularly struck by the plethora and groundswell of primary research that proposed to uncover solutions to formidably gender-based hurdles faced by women when they step outside of socially sanctioned and prescribed arenas of work. A number of salient factors influenced the writer's thinking and helped in the formulation of an instrument that might

further probe whether or not women in the trades in Alberta experience some, all or a combination of barriers cited in the literature. It will be recalled from Chapter I, however, that the writer's sole authorship in the design of the questionnaire was eclipsed when collaborative efforts were suggested by the personnel of Apprenticeship Trade Certification Branch. The following "think pieces" helped guide the collaborative design of the questionnaire. Randomly, they include the following:

To what degrees are stereotypical societal views instrumental in steering women toward traditional female occupations? What importance do family members and significant others play in factors leading to women's career decisions? How does acceptance of family members and significant others play a role in women's decisions?

To what degrees do educational institutions influence women's choice of work, given the complexity of "acceptable" female occupation issues? How do career and school counsellors advise women when they request information from them? How do these and other schooling departments reveal, either verbally or non-verbally, resistance to advice given when women seek reliable data about non-traditional work opportunities?

How do "critical filter" and "chilly climates" affect female students in various pre- and post-vocational choice-making?

How are role identity and socialized mental images about jobs in the trades affected by gender-based attitudes?

What essential roles do confidence, motivation and a well-developed sense of self play in women's lives upon their decision to become a tradesperson?

Do such discriminatory behaviours as sexual harassment occur in the trades work sites and would they occur were female workers more visible?

To what degree are women's maternal functions seen as mutually inclusive or exclusive to this forum of work?

# CHAPTER III

# ANALYSIS OF DATA

## Introduction

While the previous chapter presented an historical overview of the evolution of apprenticeship in Alberta, the content of this chapter concentrates on the analysis of data collected with the research questionnaire.

## Interpreting Research Data

The questionnaire was collaboratively designed with another researcher from the University of Calgary. In its final form, the questionnaire consisted of four parts: Part I was used to collect data on the employment history and personal information of the participants and contains the demographic information of the participants as it relates to seeking employment in non-traditional trades. Part II asked questions centred around apprenticeship information, including 21 statements with a number of open-ended questions. It probed for information relevant to the participants as they entered, progressed and perceived themselves in the role of an apprentice. Part III asked a series of questions to determine participants' satisfaction with technical

training and schooling, and examined the female apprentice during the technical training phase of apprenticeship. Part III of the research instrument contained a number of questions whereby participants were invited to provide open-ended comments and opinions relative to their apprentice work experiences. Part IV comprised 30 statements; for each statement, participants were asked to circle one of the following five choices on a five-point Likert scale: "Strongly Disagree," "Disagree," "Neutral or Don't Know," "Agree" or "Strongly Agree." The 30 statements were place into four categories: Entering the Trades (Statements 1 - 4) -- participants perception of self, one's chosen trade and future trade job opportunities; Experience On-the-job (5 -18) -- thirteen apprenticeship work conditions which probe into affective and cognitive awareness that women glean from their work in the trades; Possible Obstacles toward Job Completion (19 - 25) -- barriers that might surface and are contingent on the requirements of their apprenticeship status; and, In General (26 - 30) -- general aspects of being a female apprentice.

Barriers to Access Encountered by Women Seeking Employment in the Non-traditional Trades focuses on four sub-categories of women's apprenticeship training: Entering the Trades; Experience on the Job; Possible Obstacles toward Job Completion; and In General.

For the purpose of this study, Parts I and IV of the questionnaire served as the main source of data. These data would help to solve the research problem which initiated the study:

> To identify the barriers encountered by women who seek apprenticeship training in non-traditional trades in Alberta and barriers which they encounter prior to and during their training.

Responses to open-ended questions from Parts II and III were also analyzed and reported to explore barriers which women such as trades apprentices might encounter, but which may not have been reported in the literature.

It will be recalled from Chapter I that the population for this study comprised 122 women who were serving an apprenticeship in a non-traditional trade. For the purpose of analyzing the data.

## Part I

## Employment History and Personal Information

This part of the questionnaire consisted of ten statements, which appear in numerically sequenced tables. The employment history and personal information of the respondents are reported here in Tables 1 to 10. Each table and its respective findings are the following:

Table 1

Age of Participants

N = 122

| Age of Participant | Frequency | |
|---|---|---|
| | No. | % |
| < 20 | 2 | 1.6 |
| 20 to 25 | 29 | 23.8 |
| 26 to 30 | 40 | 32.8 |
| 31 to 35 | 21 | 17.2 |
| 36 to 45 | 27 | 22.1 |
| > 45 | 3 | 2.5 |
| TOTAL | 122 | 100% |

It is evident from the data in the above table that the age of participants ranged from less than 20 years to more than 45 years. Forty of the 122 respondents (32.8%) were between the ages of 26 and 30. Data show that 88 respondents (72.1%) were above the average age of a male apprentice which is 27. This average age for an apprentice is a major concern for labour planners and apprenticeship personnel for several reasons: the working life of the individual is reduced considerably due to the late start, and the wage which an apprentice earns may fall short of a family's subsistence needs.

Participants were asked to identify their marital status in Statement B.

Table 2

Marital Status of Participants

N = 122

| Marital Status | Frequency | |
|---|---|---|
| | No. | % |
| Single | 44 | 36.1 |
| Married | 39 | 32.0 |
| Separated | 6 | 4.8 |
| Divorced | 14 | 11.5 |
| Other | 19 | 15.6 |
| TOTAL | 122 | 100% |

Data in Table 2 indicate that 44, slightly more than one-third or 36.1%, of the respondents enroled in a non-traditional apprenticeship program were single. The data also depict the next highest category to be married (39/122 or 32.0%). Of particular interest from this sample in the responses to this study is that 20 of the 122 (6.3%) are presumably self-supportors, not unlike the 36.1% single females who may belong to the 27+ age group of women whose lives may also have undergone numerous adult developmental phases of which job changes were also significant life experiences. Combined, these women would have recognized the significant personal economic advantage in training or retraining that the apprenticeships offered.

Table 3 depicts the number of people financially dependent on the apprentice during training to achieve journeyman status.

Table 3

Number of People Financially Dependent on Participant

N = 121

| Number of People | Frequency | |
|---|---|---|
| | No. | % |
| Self | 53 | 43.8 |
| Self + 1 | 27 | 22.3 |
| Self + 2 or more | 11 | 9.1 |
| Share financial support | 29 | 24.0 |
| Other | 1 | 0.8 |
| TOTAL | 121 | 100% |

It is evident from data in Table 3 that one participant failed to respond to the question. Of the 121 respondents, 53 (43.8%) indicated that they were financially responsible to themselves while in training. Another 29 respondents indicated that they shared financial support with other family members. Twenty-seven (22.3%) of the respondents indicated that they plus one other person were dependent on the apprentice. Eleven of the 121 respondents indicated that they plus two more persons were dependent on the apprentice during training.

Table 4 determines if women involved in the study had a need for child care services while apprenticing,

Table 4

Type of Child Care Service Used by Apprentice

N = 31

| Child Care Giver | Frequency No. | Frequency % |
|---|---|---|
| Family | 7 | 5.7 |
| Babysitter | 4 | 3.3 |
| Private Day Care | 5 | 4.1 |
| Government Day Care | 4 | 3.3 |
| Other | 4 | 3.3 |
| Family & Sitter | 7 | 5.7 |
| No Response | 91 | 74.6 |
| TOTAL | 31 | 100% |

Of the 31 female apprentices with child dependence, 7 used a family member (22.6%) or a combination of family and babysitter. This participant group was followed respectively by five women who chose private daycare facilities (16.1%) and four whose choice was a government daycare (12.9%) which they failed to identify.

Ninety-one of the 122 participants did not respond, which may reveal their single age/marital status or the fact that they are among the third largest age group of mid-career changers who have teenaged offspring or adult children independent of their mothers.

Those involved in the study who did not require any form of child care service were asked to proceed to Statement E (see Table 5) to which participants were asked to respond whether or not finding child care was a problem for these apprentices. Open-ended comments were also invited.

Table 5

Child Care a Problem for Participants

N = 69

| Child Care Problem | Frequency | |
|---|---|---|
| | No. | % |
| Yes | 21 | 17.2 |
| No | 48 | 39.3 |
| No Response | 53 | 43.4 |
| TOTAL | 69 | 100% |

Of the 69 apprenticing women who provided a response to this statement, 48 (two-thirds or 69.67%) did not find child care to be a problem. On the other hand, 21 (30.4%) of the surveyed women with dependents who require daycare did have some problems. Fifty-three (43.4%) participants did not respond.

Participants were asked to provide open-ended comments if they found child care a problem while they

were completing the various phases of their apprenticeship training.

Thirty-five of the participants who responded to this question provided written descriptions to further shed light on their experiences as a working apprentice who chose the trades in order to provide for herself and at least one other dependent.

Six respondents related that their offspring were currently of the age at which they no longer required care giving, although some indicated that during those years when child care/babysitting was required, they had encountered problems.

Those female apprentices who, as a result of their choice to enter the trades as employment, had dependents requiring day care, cited the following diverse problems:

> Very difficult to get good child care on a low budget.
>
> If I had children, I think it would be a problem, expensive, travel . . . .
>
> . . . the anxiety I feel as I am presently seeking child care due to my soon return to the work force.
>
> . . . because of child care I would not be able to work overtime -- this [has] worked out satisfactorily.
>
> . . . many jobs are some distance from home and overnight or long-term care is a problem.
>
> . . . there is a great need for 24-hour day care; it would broaden career choices for women.
>
> . . . if a child becomes ill, . . . you have to leave work.

> Just to be comfortable about child care . . . it interferes with your concentration on the job.
>
> . . . [child care sheds light . . . that] other people's attitudes towards working mothers of small children, especially if you are married, are negative.
>
> People are not understanding about a single mother having to be there for your child.
>
> Farming families experience problems when the female marriage partner seeks work in the apprenticeship and looks for a babysitter or for child care.
>
> Inclement weather/working conditions penalizes those female apprentices who use pro-rated day care.
>
> Very early trade work start-up times creates problems where family care giver has dependents in both the regular school system and day care.

Of the 52 designated apprenticeship trades, 32 require a minimum of a Grade 9 education as an entry criterion. Statement E (see Table 6) was included on the questionnaire to determine the educational level a participant acquired prior to entering the apprenticeship program.

Table 6

Education Level of Participants Prior to Entering Apprenticeship

N = 122

| Education Level | Frequency No. | Frequency % |
|---|---|---|
| Some High School | 30 | 24.6 |
| High School Graduate | 36 | 29.5 |
| Some Technical/Community College | 19 | 15.6 |
| Technical/Community College Graduate | 25 | 20.5 |
| Some University | 5 | 4.1 |
| University Graduate | 3 | 2.5 |
| Other | 4 | 3.3 |
| TOTAL | 122 | 101%* |

* Total percent is greater than 100 because of rounding.

Data in Table 6 show that 36 from the surveyed female apprenticeship population graduated from high school. This group was followed respectively by those who had some high school (30), those who had graduated from technical school or community college (25), those who had some technical school or college (19), those who had some university (5), and those who had graduated from university (3). A few participants (4) indicated that they had some education other than the categories listed.

According to provincial legislation for one to enter into an apprenticeship agreement, the individual must be at least 16 years of age. To determine the entry

age of this sample of women in a non-traditional trade, see Table 7.

Table 7

Participant Age at Entry Into Apprenticeship Program

N = 122

| Age Range | Frequency No. | Frequency % |
|---|---|---|
| < 20 years | 11 | 9.0 |
| 20 to 25 years | 44 | 36.1 |
| 25 to 30 years | 31 | 25.4 |
| 31 to 35 years | 25 | 20.5 |
| 36 to 45 years | 10 | 8.2 |
| > 45 years | 1 | 0.8 |
| TOTAL | 122 | 100% |

Data in the above table indicate that 11 women registered in the apprenticeship program when they were less than 20 years of age; 44 of the participants were between the ages of 20 and 25 years when they entered the program. The next largest age group was represented by 31 women who were in the 25 to 30 year old category. This age group was followed by 21 women who were between 31 to 35 years of age when they registered as an apprentice, 10 women were from 36 to 45 years of age and only 1 female participant who registered in the program was older than 45 years. These frequencies are closely comparable to

those applicable to male apprentices although, to this writer's knowledge, a similar study has not been attempted.

To determine how many of the participants were involved with an apprenticeship, see Table 8.

Table 8

Participants' Current Apprenticeship Status

N = 121

| Apprenticeship Status | Frequency No. | Frequency % |
|---|---|---|
| Yes | 83 | 68.6 |
| No | 32 | 26.4 |
| No longer in trade | 6 | 5.0 |
| Missing | 1 | 0.8 |
| TOTAL | 121 | 100.8% |

Data in Table 8 reveal that 83 of the 122 participants were still apprentices. This number was followed by responses from the 32 female respondents who achieved "journeymen" status. Six participants were no longer working in the trades. One participant did not respond.

Part of the Manpower Development Act that governs apprenticeship is that the apprentice must have an employer before an apprenticeship agreement can be initiated. To determine if those involved in the study

were still employed by the employer to which they were first indentured, see Table 9.

Table 9

Apprentice's Employment Status with Initial Employer

N = 74

| Employment Status | Frequency No. | % |
|---|---|---|
| Yes | 33 | 27.0 |
| No | 41 | 33.6 |
| No Response | 48 | 39.3 |
| TOTAL | 74* | 100% |

* Reflects N = 74

In Table 9 are data showing that of the surveyed population of 122, 41 apprentices were no longer with their initial employer. However, 33 of these respondents were still employed by the same employer with whom they had first begun work as an apprentice. Forty-eight participants did not respond to this question.

It will be recalled that the research instrument was collaboratively designed with a graduate student from the University of Calgary. In Part I of the instrument, Questions J through Q were included in the questionnaire to collect data required by the University of Calgary researcher. These six questions were not relevant to this study; therefore, they will not be analyzed.

Apprentices come from all walks of life and occupations before they start a formal apprenticeship. To determine the major occupational group of the participants in pre-apprenticeship, see Table 10.

Table 10

Occupation of Participant Prior to Apprenticeship

N = 120

| Occupational Classification | Frequency | |
|---|---|---|
| | No. | % |
| Professional | 6 | 4.9 |
| Medical | 1 | 0.8 |
| Service | 35 | 28.7 |
| Trades | 25 | 20.5 |
| Other | 53 | 43.4 |
| No Response | 2 | 1.6 |
| TOTAL | 120 | 100% |

Data in Table 10 reveal that 35 of the 122 respondents indicated that their previous occupational classification had been in service occupations. This group was followed by the next largest occupational classification of 25 women who had been in the trades. Six participants indicated their occupational classification to have been in the professional occupations, while only one participant (0.8%) had been in the medical occupational classification. The largest number of the participants,

53, indicated that their previous occupational classification had been something "other" than the categories listed. The researchers had omitted to include thecategory of homemaker; this sample number of women may have been among this category. Unfortunately, these individuals failed to list what these occupations were. Two participants did not respond.

## Part II

## Apprenticeship Information

Part II of the questionnaire consisted of 21 statements that concentrated on collecting information on apprenticeship information. Each statement was given a letter of the alphabet as an identifier, beginning with "A" and ending with "U". Statements A, B, C, D, E, F, G, H, P, O and U were eliminated from the study because they were not relevant. Other statements from the research instrument will be analysed in this section as they appeared in the questionnaire.

One statement elicited participants' comments about the most significant event or experience influencing their decision to take an apprenticeship. Each of the statements was analyzed in the order in which they appeared in this part of the questionnaire.

Participants were provided with the opportunity to write comments to the following open-ended statement:

> Before responding to the following questions, please relate, in one or two paragraphs, the most significant event or experience which influenced your decision to take an apprenticeship.

Of the 122 participants involved in the research, 96 provided comments to this open-ended statement.

The respondents interpreted this statement using a number of broad, yet similar, sub-themes within which to frame their thoughts. These sub-themes may be described as follows: self-improvement and/or broadening of a personal skills base through trades education; job mobility/self-image; job compensation; general and specific motivators leading to the apprenticeships; marital status; desirable work conditions; and positive/negative attributes of choosing the apprenticeships.

Self-improvement and/or broadening of personal skills base through trades education. Four respondents reported that they variously liked, loved and enjoyed the work involved in apprenticeships. One of these respondents liked the mechanical aspect of her work. Ten of the participants emphasized that challenge is offered them through the apprenticeships. Variously, these ten women iterated that the challenge included proving men wrong that women cannot do this type of work -- not only can women do this work, but they can do it well, unless or until members of the public, such as customers, decline to be served by, for example, a female partsperson.

Six or seven female participants of this sub-theme felt that the apprenticeships were a direction toward bettering themselves through the involvement of new learning and new understanding of how things function. The latter two attributes of trades work contributed toward women's physical, hands-on well-being and labour. Several saw this type of work as being creative and knowledge-enhancing.

Job mobility and self-image appeal. Two female participants described the apprenticeship as having global characteristics, that is, it provided them job mobility. This attribute also afforded them independence and solitude among those trades that required outside work. In cases where customers required service, the apprenticeships proved to the public that women can do the work.

Eleven women's responses cited working for female employers as being direct outcomes of mobility and improved self-image, as well as this factor having most significantly influenced their desire to take apprenticeship training. Four women were influenced by the family business to enter the trades. Such positive family role models as father, brother, husband, mother and brother-in-law played decisive roles in numerous respondents' decisions to take an apprenticeship. Other circumstances contributing to and encouraging apprenticeship career choices included: membership in the

union, foremen, supervisors, co-workers, and encouragement from a previous job. Husband-wife businesses were also mentioned as being a significant influence. One respondent cited a teacher as a significant contributor in the decision to become an apprenticeship.

Job Compensation. Nine female participants focused directly on the trades as producing more direct income for themselves.

General and specific motivators leading to work in the apprenticeships: marital status, desirable work conditions. Four surveyed females stated that their decision to enter the apprenticeships was due to being unemployed. Of those who were employed, eight felt that the opportunities and advancement achieved from the technical training they received were significant decision factors in their choice of the apprenticeships. Of this sub-group, three stated that their training at NAIT served as a channel in their decision. One woman identified general college level involvement to have influenced her, while another woman was alerted to women being hired by Syncrude through an agreement between Alberta Career Development and Employment/Access Initiatives. Still another respondent informed the study that she was encouraged to choose apprenticing by AGT. A woman who had obviously relocated from Ontario reported her decision to have been made there while participating in an upgrading program for the trades sponsored by the Operating

Engineers Training Institute of Ontario (OETIO). One respondent cited the approach by an apprenticeship representative as having influenced her decision to become an apprentice.

Four women reported that they had always been interested in things mechanical as young children and teens; three others identified their self-identified aptitudes as motivators that influenced their decisions to take an apprenticeship.

Three women made their decisions to enter the apprenticeships following a divorce. One woman saw the stresses of professional occupations to have been a direct influencing factor in her choice of work in the trades, and another described her fatigue with the traditional gender-based work expectations for women as an influencing factor. Five more women also referred to this issue and qualified their decision in favour of the trades because they did not see themselves as clerical helpers and wished to escape the stereotyping that accompanies work of this nature.

Positive/negative factors in choosing the apprenticeships. Conclusive comments, often of an evaluative nature in the apprentices' opinions, were made. The surveyed sample who answered this part of the questionnaire said the following about their choices to apprentice in a trade:

Apprenticeship is an excellent chance for older rural people to retrain.

Apprenticeship is a chief reason to acquire journeymen's status with a ticket.

A person can challenge an exam for a ticket if she has extensive practical experience.

Trades certification provides stability for women.

Apprenticeship allows women to converse technically with men.

The encouragement of a previous technical education instructor provided me acquisition of a ticket for all-around job stability.

Trades provide future support for a woman.

Apprenticing can be forestalled in case of a pregnancy.

The emergence of women in the trades programs are helping women make career choices.

A woman's skill level through the trades makes her more marketable in less time.

The trades provides flexibility which leads to further opportunities for women.

A woman achieves better living standards with trade certification.

Previous long-term work experience is recognized in the trades.

The trades offers women equal pay for work of equal value. It is equitable and easy work.

The apprenticeship program in my trade offers me the security of certification.

The long struggle in high school to elect shop classes has been worth it.

I gained familiarity with the trades through my previous job as a clerical employee.

Long-term related experience creates

> opportunities for a woman to challenge a trade exam at the Apprenticeship Board.
>
> My choice for trade work was made when I was not being paid for work done that was equal to that of a male worker and being told that I was not a major bread-winner. The trades are career building bridges for women and can present them with opportunities for future flexibility.
>
> Apprenticeship is a means to escape seasonal employment problems while ensuring security. For women, they help overcome financial hurdles for self-education and support.
>
> I was bored with retail work. With persistence, I became accepted for apprenticing in my chosen trade, where I am paid more and enjoy my work more.
>
> I am university educated, but am unemployable and therefore chose the trade in the job area in which I worked while attending university.

While the foregoing were abridged samples shared by women mostly in positive evaluation of their choice of apprenticeship, the following reveal more problematic aspects or negative evaluation of such a choice.

> Young dependents and the requirement of urban relocation for two months technical schooling created problems.
>
> Being a woman in a male-dominated work area is difficult.
>
> The women's lib. aspects present problems.
>
> It is energy consuming to find confidence to care enough about one's self and the reactions from others.
>
> Are the trades a way of overcoming dead-end jobs for women?
>
> It is a problem to experience the scare tactics and discouragement by male peers.
>
> The trades present drawbacks of finding ongoing employers to help finish training. I am tired of changing jobs.

Apprenticing in a shop such as Massey Furgeson's parts school can bring problems when the company collapses.

Single-parent status for a female apprentice can be problematic.

More practical training would enhance technical knowledge.

Of the 96 respondents in this open-ended question, the following chosen trades profile surfaced: seven tools and parts persons, three automotive trades, two Alberta mobile crane operators, and three cabinet workers. The remaining respondents occupied the following trades: welder, insulator, taper, electronics, electrical, wood working, engineering technologist, and hoisting engineer.

To determine if participants were encouraged by anyone to enter the apprenticeship program, see Table 11.

Table 11

Participants Encouraged to Enter a Trade

N = 121

| Entrance Encouraged | Frequency No. | Frequency % |
|---|---|---|
| Yes | 81 | 66.4 |
| No | 40 | 33.8 |
| No Response | 1 | 0.8 |
| TOTAL | 121 | 100% |

In Table 11 are data which indicate that two-thirds, 81, of the research sample indicated the responding "yes" they had been encouraged by someone to enter apprenticeship training to prepare for a non-traditional trade. Forty participants, by indicating "no" meant that no specific person had encouraged them to seek an apprenticeship and that the decision to choose work among the non-traditional trades was self-made. One participant did not respond.

Participants who answered the previous question in the affirmative were asked who encouraged them to make their decision to obtain training in an apprenticeship non-traditional trade (see Table 12).

Table 12

Individual Who Encouraged Participants to Enter a Trade

N = 81

| Individual Who Encouraged | Frequency | |
|---|---|---|
| | No. | % |
| Friend | 39 | 32.0 |
| Father | 14 | 11.5 |
| Mother | 2 | 1.6 |
| Other Relative | 5 | 4.1 |
| Counsellor | 1 | 0.8 |
| Other | 20 | 16.4 |
| No Response | 41 | 33.6 |
| TOTAL | 81 | 100% |

Data in the above table show that 81 of the 122 apprentices responded. These data show that of those participants who were encouraged to enter a trade, 39 indicated that their encouragement to do so came from a friend. The next largest group to receive encouragement, 14 of the women, stated that their fathers had provided this encouragement. Five participants indicated that another relative had offered encouragement. Only two participants cited their mother as lending encouragement, followed by one female apprentice who indicated that a school counsellor had suggested encouragement for her to choose work from among the trades. Twenty participants also made it known that they were encouraged by someone other than the categories listed. This group may have surfaced from among those examined in Table 11 who may have made this choice themselves. Forty-one ddid not respond.

Table 13 reveals more about the responses by the women of this study as to their discouraging experiences from others to do trade work.

Table 13

Participants' Discouragement to Enter a Trade

N = 121

| Entrance Discouragement | Frequency No. | % |
|---|---|---|
| Yes | 30 | 24.6 |
| No | 91 | 74.6 |
| No Response | 1 | 0.8 |
| TOTAL | 121 | 100% |

The data in this table disclose that 91 participants indicated that no one had tried to discourage them from entering a non-traditional trade of their choice, whereas 30 of those who participated had been discouraged by someone else. Because all but one apprentice answered this question, it would be interesting to speculate all or even some of the reasons why these female apprentices were not shaken in their convictions to find gainful employment among the trades.

Participants who responded "yes" to this question were asked in the next question to identify the person who attempted to discourage them from becoming involved in apprenticeship training (see Table 14).

Table 14

Individual Who Discouraged Participants to Enter a Trade

N = 30

| Individual Who Discouraged | Frequency | |
|---|---|---|
| | No. | % |
| Friend | 15 | 12.3 |
| Father | 5 | 4.1 |
| Mother | 2 | 1.6 |
| Other Relative | 3 | 2.5 |
| Counsellor | 2 | 1.6 |
| Other | 3 | 2.5 |
| No Response | 92 | 75.4 |
| TOTAL | 30 | 100% |

Data in this table show that of 30 participants who responded, 15 indicated that a friend attempted to discourage them from entering an apprenticeship program, while five identified their father as the individual who attempted to discourage their choice of the trades as work. Three participants indicated that another relative tried to discourage them, while two participants were discouraged by their mothers. Two respondents were discouraged by a teacher in their academic experience from choosing the trades as a work choice, and three respondents identified someone other than the categories of individuals listed who discouraged them from choosing the trades as gainful employment. However, a significant 92 women of this sample population did not respond to this

question because they found this question already answered in the one pertaining to Table 13.

These data also show the influence that the peer group might have on an individual in making a career choice.

Table 15 depicts responses to the question asking whether the participants would encourage other females to enter their trade.

Table 15

Participant Encourage Other Women to Enter Her Trade

N = 120

| Encourage for Her Trade | Frequency | |
|---|---|---|
| | No. | % |
| Yes | 113 | 2.6 |
| No | 7 | 5.7 |
| No Response | 2 | 1.6 |
| TOTAL | 120 | 100% |

Data in this table show that the majority of participants, 113 of 120, would encourage other women to enter their trade, with only seven respondents indicating that they would not encourage other women to do so.

Participants were asked to respond with a "yes" or "no" to the question asking whether they would encourage other females to enter another trade (see Table 16).

Table 16

Would Participant Encourage Other Women to Enter Another Trade

N = 116

| Encourage for Another Trade | Frequency | |
|---|---|---|
| | No. | % |
| Yes | 113 | 92.6 |
| No | 3 | 2.5 |
| No Response | 6 | 4.9 |
| TOTAL | 116 | 100% |

Data in this table point to the fact that 113 participants would encourage other women to enter another trade, while only a small number, 3, indicated they would not encourage other women to enter trades. Six apprentices did not respond. Here some rhetorical questions as to why one's own chosen trade might not suit other women could be further explored.

The female apprentices of this study were next asked if they were involved or affiliated with a union (see Table 17).

Table 17

Union Affiliation of Participants

N = 121

| Union Affiliation | Frequency No. | % |
|---|---|---|
| Yes | 20 | 16.5 |
| No | 101 | 83.5 |
| No Comment | 1 | 0.8 |
| TOTAL | 121 | 100% |

It is evident from these data that 101 of the 122 participants had no affiliation with a trade union. There were, however, 20 apprentices in the study who indicated that they were members of a trade union. One participant indicated a "no comment" response. A further probing question relative to unions might have been posed to inquire why membership fails to contribute or to mitigate barriers toward women who enter the trades as an occupation.

The apprenticeship system is made up of local apprenticeship committees that report to the Provincial Apprenticeship Committee for the various apprenticeable trades. The latter committee is responsible to the Apprenticeship Board. To determine if those involved in the research were knowledgeable of their local

apprenticeship committee. Data from this question were used to organize Table 18.

Table 18

Participant Awareness of Local Advisory Committee Meetings

N = 116

| Awareness of Meetings | Frequency | |
|---|---|---|
| | No. | % |
| Yes | 6 | 5.2 |
| No | 110 | 94.8 |
| No Response | 6 | 4.9 |
| TOTAL | 116 | 100% |

A vast majority, 110, of the 122 respondents were not aware that their local apprenticeship committee held meetings. Six respondents replied in the affirmative, which was an indication that they were aware of these meetings. Six participants did not respond.

There are researchers, scholars and social scientists advocating feminist epistomology who believe that gender bias terms and language should be removed. In Alberta, the Manpower Development Act, 1985, specifically uses the term "Journeyman" in the legislation to refer to an individual who has completed the required apprenticeship program prior to certification. To determine how women in this investigation felt toward the use of the

term "Journeyman," the data in Table 19 recorded the reactions of participants to this question..

Table 19

Reaction of Participants to Term Journeyman

N = 117

| Reaction to "Journeyman" | Frequency No. | % |
|---|---|---|
| Strongly Approve | 20 | 16.4 |
| Approve | 29 | 23.8 |
| Indifferent | 59 | 48.4 |
| Disapprove | 6 | 4.9 |
| Strongly Disapprove | 3 | 2.5 |
| No Response | 5 | 4.1 |
| TOTAL | 117 | 100% |

Of the 117 respondents, 59 indicated that they were indifferent to the term "journeyman" as it applies to women working in the trades, while 29 respondents approved of the term, and 20 indicated strong approval of this term as it describes women who work in the trades. A lesser number -- six and three, respectively -- responded with disapproval or strong disapproval toward the designation of "journeyman" as it applies to women working in the trades. Five of the surveyed female apprentices did not respond. One could also analyze this table from the two distinct groupings that become evident through the data: the group who wholly approve (40.2%) and the group who

range from indifference to strong disapproval (55.8%). Furthermore, given the 4.1 who did not respond, to what degree, then, does this sampling of women actually see themselves as "journeymen"? To what degree is this a legal attempt to support stereotypecasting that is clearly sexist.

## Part III

## Apprenticeship Schooling

Apprenticeship training has two components -- on-the-job training, the practical phase, and in-school training, the theoretical phase. Of the 52 apprenticeable trades in Alberta, 49 have a technical training component that can vary from 4 to 12 weeks, depending on the trade. Technical training is given for each period of apprenticeship. Statements in this section of the research instrument concentrate on technical training. These statements are alphabetized from A to M. The following statements were relevant: A, F, G, H, I, J and K. The remaining statement were eliminated from the analysis of the data.

Participants were asked to rate the level of satisfaction they had with the apprenticeship training which they received for each period of training. To rate their training, a five-point Likert scale was provided with these choices: "Very Satisfied," "Satisfied," "No Opinion," "Dissatisfied," and "Very Dissatisfied."

The data collected with this question will be found in Table 20. These data show:

With respect to training received during the first year, of the 105 participants, 52 were "satisfied," followed by 42 participants who were "very satisfied," 8 were of "no opinion," and 3 were "dissatisfied." Seventeen participants did not provide the data requested.

With respect to training during the second year, of 71 participants who responded, 44 were "satisfied," followed by 21 who were "very satisfied," 5 were of "no opinion," and 1 was "dissatisfied." Fifty-one participants failed to supply the requested information.

With respect to training during the third year, 41 of the 122 participants, 20 indicated that they were "satisfied," followed by 16 participants who were "very satisfied," 3 participants who had "no opinion," and 2 participants who were "dissatisfied." Eighty-one participants did not respond.

With respect to training during the fourth year, six of the 122 participants who provided the information were "satisfied," followed by five participants who were "very satisfied," 3 participants who were "very dissatisfied," and 1 participant was of "no opinion." One-hundred and seven participants did not respond.

To determine the relationship between what was learned in school and its application on the job site, Table 21 was constructed to describe the collected data.

**Table 20**

**Satisfaction with Apprenticeship Training Received**

| N = | Year | No. Very Satisfied | % | No. Satisfied | % | No. No Opinion | % | No. Dissatisfied | % | No. Very Dissatisfied | % | No. Missing | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 105 | 1 | 42 | 40.0 | 52 | 9.5 | 8 | 7.6 | 3 | 2.9 | | | 17 | 13.9 |
| 71 | 2 | 21 | 29.6 | 44 | 62.0 | 5 | 7.0 | 1 | 1.4 | | | 51 | 41.8 |
| 41 | 3 | 16 | 39.0 | 20 | 48.8 | 3 | 7.3 | 2 | 4.9 | | | 81 | 66.4 |
| 15 | 4 | 5 | 33.3 | 6 | 40.0 | 1 | 6.7 | | | 3 | 20.0 | 107 | 87.7 |

Table 21

Relationship of Technical On-site Training

N = 100

| On-site/Technical Relationship | Frequency | |
|---|---|---|
| | No. | % |
| Yes | 91 | 74.6 |
| No | 9 | 7.4 |
| No Response | 22 | 18.0 |
| TOTAL | 100 | 100% |

Of the 100 respondents who answered this question, 91 checked "yes" they were able to relate what they had learned during their apprenticeship technical training to their everyday job duties. However 9 participants indicated that they were not able to relate their learning with requirements of their job. Twenty-two participants did not respond.

The question that asked if technical training helped to improve the performance of the apprentice on-the-job required a "yes/no" response and was organized into Table 22.

Table 22

Relationship of Technical Training Improved Job Performance

N = 105

| Training Improved Job Performance | Frequency | |
|---|---|---|
| | No. | % |
| Yes | 97 | 79.5 |
| No | 8 | 6.6 |
| No Response | 17 | 13.9 |
| TOTAL | 105 | 100% |

The question was utilized to ascertain the number of women apprentices in non-traditional trades who felt that their technical training was compatible with assisting them in improving their job performance. Ninety-seven respondents, clearly a majority, took the position that their apprenticeship technical training did help them improve their performance on the job. Only eight participants indicated that such training did not lead to improved job performance for them when they returned to the job site following their schooling. Seventeen participants did not respond.

To determine if the women apprentices involved in the research were taught by female instructors while attending technical training, a "yes/no" response was sought.

In Table 23 depicts the data which were collected with this question.

Table 23

Female Instructors Taught Technical Training

N = 105

| Female Instructors | Frequency No. | % |
|---|---|---|
| Yes | 14 | 11.5 |
| No | 91 | 74.6 |
| No Response | 17 | 13.9 |
| TOTAL | 105 | 100% |

Of the 105 participants who provided a response to Statement H, 91 respondents indicated that they did not have any female instructors during the technical training phase of their apprenticeship. Fourteen of the female apprentices indicated that they did have female instructors while completing their technical training. Seventeen respondents did not respond to this statement.

Technical training is offered in a number of institutions which are part of the non-university post-secondary education delivery system, part of Alberta Advanced Education. Among these institutions are two technical institutes, Alberta Vocational Colleges and eight public colleges throughout the province. An

apprentice has the right to attend an institution near their place of residence. To determine whether or not apprentices had to temporarily relocate for their technical training, Table 24 will show that 71 first-year apprentices did not have to relocate for the technical training phase of their program. However, 33 of the respondents indicated that they were required to relocate for that phase of their training. Eighteen respondents who were part of this first-year technical schooling group did not respond.

An analysis of responses from the second-year group of apprentices show that 47 did not have to relocate for technical training, yet 23 indicated that they were required to relocate. Fifty-two failed to respond to this statement.

An analysis of responses from the third-year of group of apprentices show that 27 respondents did not have to relocate to take their technical classroom training. On the other hand, 15 respondents showed that they were required to relocate. Eighty participants did not respond to this question.

Of the the fourth-year group of apprentices, 12 revealed that they did not have to relocate. Four female apprentices indicated that they were required to relocate. One hundred and six participants did not respond to this question.

**Table 24**

**Attendance / Relocation Requirement of Participants for Technical Training**

| N = | Year | No. Yes | No. No | % Yes | % No | No. Missing | % |
|---|---|---|---|---|---|---|---|
| 104 | 1 | 33 | 71 | 27.0 | 5.2 | 18 | 14.8 |
| 70 | 2 | 23 | 47 | 18.9 | 67.1 | 52 | 42.6 |
| 42 | 3 | 15 | 27 | 12.3 | 22.1 | 80 | 65.6 |
| 16 | 4 | 4 | 12 | 3.3 | 9.8 | 106 | 86.9 |

The hypothetical question of "critical filter" or number of women who form a particular group in training in those trades traditionally regarded as non-traditional work for women was the purpose for Table 25.

The analysis of data from Table 25 is based on the responses of the female apprentices who responded to this statement.

With respect to the first year of technical training, the number of other females in the participants' classes ranged between 0 and 5, with 43 participants indicating that there were no other women enrolled in their technical training classes. Eighteen participants indicated that there was one other woman, 17 indicated that there were two other women, 13 indicated that there were three other women, seven indicated that there were four other women, and three indicated that there were five other women. Twenty-one participants did not respond to this question.

With respect to the second year of technical training, the number of other females in the participants' classes ranged between 0 and 6; 32 participants indicated that there were no other women in their classes. Eleven participants indicated that there was one other woman, 12 indicated that there were two other women, eight indicated that there were three other women, two indicated that there were four other women, two indicated that there were five other women, and one indicated that there were six

**Table 25**

**Number of Other Female Classmates Attending Technical Class Training**

| N = | | Frequency | % | Missing | % |
|---|---|---|---|---|---|
| 101 | Year 1 | 0 - 43 | 35.2 | | |
| | | 1 - 18 | 14.0 | | |
| | | 2 - 17 | 13.9 | | |
| | | 3 - 13 | 10.7 | | |
| | | 4 - 7 | 5.7 | | |
| | | 5 - 3 | 2.5 | 21 | 17.2 |
| 68 | Year 2 | 0 - 32 | 26.2 | | |
| | | 1 - 11 | 9.0 | | |
| | | 2 - 12 | 9.8 | | |
| | | 3 - 8 | 6.6 | | |
| | | 4 - 2 | 1.6 | | |
| | | 5 - 2 | 1.6 | | |
| | | 6 - 1 | 0.8 | 54 | 44.3 |
| 40 | Year 3 | 0 - 15 | 12.3 | | |
| | | 1 - 10 | 2.8 | | |
| | | 2 - 7 | 5.7 | | |
| | | 3 - 4 | 3.3 | | |
| | | 4 - 3 | 2.5 | | |
| | | 5 - 1 | 0.8 | 82 | 67.2 |
| 12 | Year 4 | 0 - 9 | 7.4 | | |
| | | 1 - 1 | 0.8 | | |
| | | 2 - 2 | 1.6 | 110 | 90.2 |

other women. There were 54 participants who did not respond to this statement.

During the third year of technical training, the number of other females in the participants' classes ranged between 0 and 5, with 18 participants indicating that there were no other women in their classes. Ten participants indicated that there was one other women, seven that there were two other women, four that there were three other women, three that there were four other women, and one that there were five other women. Eighty-two participants did not respond.

For the fourth year of technical training, the number of other females in the participants' classes ranged between 0 and 2. Nine participants indicated that there were no other women in their classes, one indicated that there was one other woman, and two indicated that there were two other women. One hundred and ten participants did not respond.

Statement K, Part III, was a "yes/no" question which also asked the participants to provide comments as to additional problems they faced with childcare. Open-ended comments were also invited (see Table 26).

Table 26

Type of Child Care Services Used by Participants While Attending School

N = 77

| Type of Services | Frequency No. | Frequency % |
|---|---|---|
| No Child Care | 49 | 40.2 |
| Family | 10 | 8.2 |
| Babysitter | 2 | 1.6 |
| Private Day Care | 7 | 5.7 |
| Government | 4 | 3.3 |
| Other | 2 | 1.6 |
| Combination | 3 | 2.5 |
| No Response | 45 | 36.9 |
| TOTAL | 122 | 100% |

Of the 77 participants who answered this question, 49 had no use for child care while they were completing the technical training phase of their apprenticeship program. This group of women was followed by those women who had to make use of these forms of day care: ten used a family member, seven made use of private day care facilities, four sought day care at a government facility, three employed a combination of child care services which were available, and four participants two of whom found day care from a babysitter and two who found some other form of care. Forty-five participants did not respond to this question, which corroborates earlier findings from

this sample of apprentices whose marital status is primarily single and who are without childcare-aged dependents.

## Part IV

### Barriers to Access Encountered by Women Seeking Training in Non-traditional Trades

Part IV of the research questionnaire consisted of 30 statements which were placed into these four categories: Entering the Trades (14); Experiences On the Job (14); Possible Obstacles to Job Completion (7); and, In General (5). Participants were asked to indicate agreement or disagreement for each statement using a five-point Likert scale using these choices: Strongly Disagree (SD) = 1; Disagree (D) = 2; Neutral or Don't Know (N) = 3; Agree (A) = 4; or Strongly Agree (SA) = 5. Data analyzed in this section will be in four segments as these segments appeared in the questionnaire. However, a slightly different approach will be used because the statements in each category will not be presented in a separate table.

In reporting the analysis of data in the tables for this part of the report, the "Strongly Disagree" and "Disagree" ratings will be collapsed and reported under the heading "Disagree." Similarly, the "Agree" and "Strongly Agree" ratings will be combined and reported as "Agree." The "Neutral rating will be reported as shown in the appropriate table.

Entering the Trades

Data collected with the four statements of this category were used to assemble Table 27. This first statement in this category asked participants to rank this statement:

> The general public's perception of women in non-traditional trades is generally positive.

Data in Table 27 show that the public perception of women in non-traditional trades would be considered as generating positive attitudes toward trades women, 68 of the respondents "Agreed" with this statement; 34 "Disagreed" with the statement; and 20 were "Neutral."

The second statement that those involved in the study were asked to rate read:

> Increasingly more women find their choices of work among the trades.

It is evident from data in the table that 69 of those involved in the research "Agree" that more women are choosing to work in a trade. Thirty-eight of these women remained "Neutral" on this issue, while 19 "Disagreed."

The third statement read:

> Recent anti-stereotypical education to promote women in "non-traditional jobs" has strengthened women's confidence to do "trade" jobs.

Seventy of the 121 participants who rated this statement agreed with it; 36 were "Neutral" towards the statement; and 15 did not "Agree" with it. These data can be found in Table 27.

Table 27

**Barriers to Access Encountered by Women Entering the Trades in Non-traditional Apprenticeship Program**

| N | SN[1] | Entry Barrier | Strongly Disagree | % | Disagree | % | Neutral | % | Agree | % | Strongly Agree | % | No Response |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 122 | 1 | Public Perception | 5 | 4.1 | 29 | 23.8 | 20 | 16.4 | 59 | 46.4 | 9 | 7.4 | 0 |
| 121 | 2 | More women work choices among Trades | 3 | 2.5 | 16 | 13.2 | 38 | 31.4 | 62 | 51.2 | 2 | 1.7 | 1 |
| 121 | 3 | Anti-stereotypical education promotes women's confidence in non-traditional work | 2 | 1.7 | 13 | 10.7 | 36 | 29.8 | 63 | 52.1 | 7 | 5.8 | 1 |
| 122 | 4 | Skilled jobs ensures work futures for women | 13 | 10.7 | 23 | 18.9 | 15 | 12.3 | 37 | 30.3 | 34 | 27.9 | 0 |

SN[1] = Statement Number

In response to Statement 4:

> I decided to get a skilled job because there was no future in what I was doing before.

Data in Table 27 show that of the 122 participants who rated this statement, 71 "Agreed" that they entered an apprenticeship program because there was no future in their job; 36 "Disagreed" with the statement; and 15 were "Neutral."

Experiences on the Job

This category included a total of 14 statements. Statements 5 through 18 sought to probe a variety of on-the-job experiences for women in non-traditional apprenticeship trades, such as may occur when women share job space with men who had heretofore not experienced women entering these trades. Data collected with the 14 statements were used in preparing Table 28.

In response to statement 5 which read:

> I feel like the token woman; the only reason I was hired was because the company had to hire a woman.

Data in Table 28 show level of disagreement that 103 of the 122 participants had with this statement. This is an indication that these women felt they were hired as apprentices because of their competencies and not because of their gender. Six of those involved in the research "Agreed" and 13 remained "Neutral."

**Table 28**

**Barriers to Access Encountered by Women Entering the Trades in Non-traditional Apprenticeship Programs**

| N | SN[1] | Experiences On-the-Job | Strongly Disagree | % | Disagree | % | Neutral | % | Strongly Agree | % | Agree | % | No Response |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 122 | 5 | Hired trades women feel themselves in token status due to hiring quotas | 63 | 51.6 | 40 | 32.8 | 13 | 10.7 | 3 | 2.5 | 3 | 2.5 | 0 |
| 121 | 6 | Trades as "male work-places" are problematic for women | 35 | 28.9 | 47 | 38.8 | 17 | 14.0 | 20 | 16.5 | 2 | 1.7 | 1 |
| 122 | 7 | Positive male peer perceptions toward women in non-traditional trades | 1 | 0.8 | 19 | 15.6 | 9 | 7.4 | 78 | 63.9 | 15 | 12.3 | 0 |
| 120 | 8 | Supervising staff share roles with proficient female trades person | 6 | 5.0 | 24 | 20.0 | 37 | 30.8 | 46 | 38.3 | 7 | 5.8 | 2 |
| 121 | 9 | Equal treatment of both gender workers in my trade workplace | 6 | 5.0 | 17 | 14.0 | 8 | 6.6 | 62 | 51.2 | 28 | 23.1 | 1 |
| 120 | 10 | Positive work environment/climate | | | 8 | 6.7 | 11 | 9.2 | 74 | 61.7 | 27 | 22.5 | 2 |
| 121 | 11 | Hazardous workplace pollution as bothersome | 6 | 5.0 | 17 | 14.0 | 7 | 5.8 | 75 | 62.0 | 16 | 13.2 | 1 |
| 122 | 12 | Physical activities same for all workers | 1 | 0.8 | 11 | 9.0 | 7 | 5.7 | 76 | 62.3 | 27 | 22.1 | 0 |
| 121 | 13 | Sexist language and jokes are acceptable in the trades | 7 | 5.8 | 29 | 24.0 | 26 | 20.7 | 44 | 36.4 | 16 | 13.2 | 1 |
| 120 | 14 | Frequent work progress feedback | 5 | 4.2 | 25 | 20.8 | 18 | 15.0 | 63 | 52.5 | 9 | 7.5 | 2 |
| 122 | 15 | Workplace price/self-worth | 6 | 4.9 | 26 | 21.3 | 11 | 9.0 | 63 | 51.6 | 16 | 13.1 | 0 |
| 122 | 16 | Importance of self-satisfaction for work accomplishments in my trade | 1 | 0.8 | | | 4 | 3.3 | 57 | 46.7 | 60 | 49.2 | |
| 122 | 17 | Comfortable respect levels from others | 2 | 1.6 | 7 | 5.7 | 11 | 9.0 | 82 | 67.2 | 20 | 16.4 | 0 |
| 121 | 18 | Trades as change agent for female self-concept | 7 | 5.8 | 6 | 5.0 | 21 | 17.4 | 63 | 52.1 | 24 | 19.8 | 1 |

SN[1] = Statement Number

Participants were asked to rate Statement 6 using the 5-point Likert scale. This statement read:

> The toughness of the "male workplace" atmosphere makes working in the trades for women overwhelming, problematic, and intimidating.

In Table 28, there are data which show that of the 121 women apprentices who provided a response to this statement, 82 "Disagreed" with it; 22 "Agreed"; and 17 were "Neutral." One participant did not rate this statement.

To determine the attitudes male colleagues have towards women in a non-traditional trade, participants were asked to rate the seventh statement:

> Other male apprentices' perceptions toward women in non-traditional trades is generally positive.

It is evident from data in Table 28 that 93 respondents "Agree" that the perceptions of male apprentices is positive toward women in non-traditional trades; 20 "Disagreed" with the statement; and 9 were "Neutral."

The eighth statement that those who participated in the investigation were asked to rate was:

> Foremen and Supervisors in the trades generally seem agreeable in the sharing of their supervisory roles with those women who are proficient in their chosen trade.

Fifty-three of the 120 women apprenticing in a non-traditional trade "Agreed" with the statement; 20 "Disagreed"; and 9 were "Neutral," with one not supplying the requested information.

Statement 9 was included in the questionnaire to determine the quality of supervision and treatment that is shared by supervisors with women they supervise.

> Quality of supervision and treatment of both male and female tradespersons in my place of work is about the same.

There were 120 female apprentices who answered this statement. Of those, 53 "Agreed" with the statement; 37 remained "Neutral"; and 30 "Disagreed." The remaining 2 participants did not rate this statement.

The tenth statement in the questionnaire was prepared to determine whether or not the work environment/climate bothers a female apprentice in a non-traditional occupation working on the job site. This statement asked:

> On the whole, my work environment/climate does not bother me.

Data in Table 28 show that 120 of the 122 participants rated this statement. Of the number, there were 101 who "Agreed" that the climate where these individuals worked did not bother them; 8 "Disagreed" with the statement; and 11 were "Neutral."

The Canadian Classification and Dictionary of Occupations (CCDO) (1971) lists as part of the occupational description the environmental conditions under which a worker must perform the duties of the occupation. One of these environmental conditions is atmospheri conditions of fumes, odours, toxic conditions, dust, and poor ventilation (Manpower and Immigration, Canadian Classification and Dictionary of Occupations,

Volume I, 1971, p. 1166). To determine if the environmental conditions of noise, dirt, pollution bothered participants on the job site, they were asked to rate Statement 11:

> On the whole, noise, dirt/pollution, does not bother me.

By their rating of either "Agree" or "Strongly Agree," 91 of the 121 participants "Agree" that the environmental conditions where they were apprenticing their trade did not bother them. Twenty-three of these participants were bothered by these conditions, while seven remained "Neutral."

While the CCDO also lists the physical activities including both the physical requirements and the physical capacities a worker must meet for an occupation. Among these and other physical activities are: lifting, carrying, pushing, and pulling. To determine if these activities are required of apprentices regardless of gender, Statement 12 read:

> Physical work conditions such as heavy lifting and heavy load carrying is expected from both male and female tradespersons.

One hundred and three of a research sample of 122 "Agree" that both sexes on the job site should be required to carry out the physical activities required of the job. There were 12 who were not in agreement with the statement, and 7 who were "Neutral."

Statement 13 read:

> Sexist language, including jokes, is acceptable in trade work, where the majority of workers are men.

There are data in Table 28 which indicate that 60 of the respondents "Agree" that sexist language and jokes are an acceptable form of behaviour in a trade where male workers predominate. Thirty-six of the 121 participants who provided data "Disagreed" with the statement, and 26 were "Neutral."

During each period of technical training, instructors who teach that phase of training must submit a grade of the apprentice's performance to the Apprenticeship and Trade Certification Branch. Statement 19 was included in the questionnaire to determine if the apprentices received feedback on the quality of work performed on the job site. Statement 14 read:

> Feedback on work progress is frequently given and discussed.

Of the research cohort of 122, 120 rated this statement. These ratings given in Table 28 show that 72 "Agree" that they receive formative feedback on the work they perform; 30 were of the opposite persuasion; and 18 were "Neutral," by not taking a stand either way.

Statement 15 read:

> Feelings of work pride and self-worth are encouraged in my work place.

Data in Table 28 show the response given by the research cohort of 122 to this statement. It is evident from these

data that 79 of the respondents "Agreed" that at their work place they are encouraged to develop feelings of pride in their work as well as developing self-worth as an individual. Thirty-two "Disagreed" with this statement, while 11 remained "Neutral."

In this table are data which show the importance of self-satisfaction for the work accomplished by the women apprentices who were practising in a non-traditional trade. These data were collected with Statement 16:

> My sense of accomplishment for work well done is an important part of my work in my chosen trade.

The entire research sample of 122 responded to this statement. Of these, 117 "Agreed" that they developed a sense of accomplishment for the work that they did as part of their trade. Four of those involved in the research were "Neutral" to this statement, and only one was in disagreement with it.

Statement 17 read:

> I feel comfortable with the level of respect that I perceive from others.

An analysis of data in Table 28 shows that 102 of the 122 women apprenticed in non-traditional trades involved in the study "Agree" that they feel comfortable with the level of respect that they perceive others have toward them. Eleven members of this group were "Neutral" and nine "Disagreed" with the statement.

Women apprentices are expected to meet the same physical demands, work under the same environmental

conditions, and perform the same physical activities as their male counterparts. Many of these work requirements can change the self-concept of an individual. The eighteenth statement read:

> I've done things I never considered possible before and it has changed my self-concept.

Reviewing data from Table 28, it is clear that 87 of the 121 apprentices who rated this statement "Agree" that their self-concept has changed because of the work requirements they had to perform as an apprentice. Twenty-one of the research cohort of 122 rated this statement as "Neutral" and 13 "Disagreed" with it.

Possible Obstacles Toward Job Completion

This portion of the research questionnaire included seven statements where participants were asked to rate using the five-point Likert scale. In Part III of the questionnaire, these statements were numbered 19 through 25 and concentrated on the different obstacles that women might have to face in their quest to successfully complete apprenticeship training and before being certificated as a "Journeyman." Data collected with these seven statements were used to organize Table 29.

An apprentice is a learner who is learning the skills, knowledges, understandings, and attitudes of a tradesman. As a learner, it is inevitable that mistakes will occur during the learning process. The 122

Table 29

**Possible Obstacles Toward Job Completion:**

**Barriers to Access Encountered by Women Seeking in Non-traditional Apprenticeship Programs**

| N | SN[1] | Obstacles | Strongly Disagree | % | Disagree | % | Neutral | % | Agree | % | Strongly Agree | % | Missing |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 122 | 19 | Mistakes leading to learning opportunities | | | 16 | 13.1 | 17 | 13.9 | 73 | 59.8 | 16 | 13 | 0 |
| 121 | 20 | Trades work for women is too tough | 83 | 68.6 | 32 | 26.4 | | | 6 | 5.0 | | | 1 |
| 122 | 21 | Easy access to union information and membership | 13 | 10.7 | 10 | 8.2 | 81 | 66.4 | 13 | 10.7 | 5 | | |
| 116 | 22 | Availability to child care subsidy information | 5 | 4.3 | 9 | 7.8 | 83 | 71.6 | 15 | 12.9 | 4 | 3.4 | 6 |
| 119 | 23 | Maternity leave for women in non-traditional work no problem | 3 | 2.5 | 4 | 3.4 | 87 | 73.1 | 20 | 16.8 | 5 | 4.2 | 3 |
| 122 | 24 | Transportation to work no obstacle | 2 | 1.6 | | | 2 | 1.6 | 72 | 59.0 | 46 | 37.7 | |
| 121 | 25 | Transportation to technical site no problem | 2 | 1.7 | 3 | 2.5 | 7 | 5.8 | 67 | 55.4 | 42 | 34.7 | 1 |

SN[1] = Statement Number

participants of the study were asked to rate Statement 19 which read:

> As an apprentice, it's o.k. to make mistakes, because you're there to learn.

Eighty-nine of the 122 participants by their rating "Agreed" that it was permissible for them to make mistakes as they progressed through the different periods of their apprenticeship training. Sixteen "Disagreed" that they should be permitted to make mistakes and 17 remained "Neutral." These data can be found in Table 29.

Those involved in the research were asked to rate this statement:

> Trade work is mentally/physically too tough for women.

Data in Table 29 show 115 of the 121 who rated the above statement "Disagreed" with the work that comprises a trade is both mentally and physically too tough for women to perform. There were six of the women apprentices in non-traditional trades who "Agreed" with the statement.

A number of custom trades, trades that "involve the production of things" (Fryklund, 1942, p. 8), have a union affiliation. Statement 21 was written to determine if the women of this study had access to union information and membership. This statement read:

> I find that access to union information for women in non-traditional trades and invitation to membership are readily available.

Data from Table 29 show that 81 of the 122 members of the research sample were "Neutral" toward this statement; 23

"Disagreed" with it; and 18 "Agreed" that they had available and accessible to them union information and an invitation to become a union member.

Data collected with Statement D, Part I, were presented in Table 4 which shows the types of child care services used by women involved in the research. Day care can be an obstacle to a woman attempting to complete an apprenticeship program. Closely related to Statement D was Statement 22 which read:

> Access to Day Care and subsidization information about Day Care is available to me.

In Table 29 are data which were collected with this statement and used to organize this table. These data show that 83 of 122 participants were "Neutral" toward this statement; 19 "Agreed" that they had both information and access to Day Care; and 14 "Disagreed." Six participants did not respond to this statement.

The range of age of female apprentices involved in this study was between 20 and 45, with 92 between the ages of 20 and 35. This range of age is considered by the medical profession to be the range of child-bearing age. To determine if maternity leave was available to women, Statement 23 read:

> Maternity leave for women in non-traditional trades is no problem.

From data in Table 29, it is evident that of the 119 women who responded to this statement, 87 were "Neutral," 25 "Agreed" with the statement, and there were 7 who

"Disagreed" with it. Three participants failed to rate the statement.

Statement 24 read:

> Finding transportation to work is not an obstacle for me.

It is evident from data in Table 29 that 118 of the 122 participants "Agreed" that locating transportation to work did not create a problem for them. There were an equal number of participants who either "Disagreed" or were "Neutral" toward that statement, two participants respectively.

Closely related to an apprentice locating transportation to work was to find transportation to the site where technical training was offered. This in some cases could be considered an obstacle toward an apprentice completing the program. To determine if participants considered finding transportation to technical training, Statement 25 read:

> Finding transportation to school is not an obstacle for me.

One hundred and nine of the 121 participants who rated this statement "Agreed" that locating transportation to attend technical training was not an obstacle for them. Seven of the participants were "Neutral" toward this statement and two "Disagreed" with it.

In General

This section, Part IV of the questionnaire, consisted of five statements numbered 26 through 30. In addition to these statements, space was made available for participants to comment on the barriers they may have encountered as they participated in apprenticeship training for a non-traditional trade.

Data collected with these five statements were used to organize Table 30 and are presented in the order in which the statement appeared in the instrument.

Statement 26 read:

> I did not have any difficulty with the Math/ Science courses in Junior and Senior High School.

It is evident from data in Table 30 that 62 of the 121 who "Agreed" with this statement did not have any difficulty with either courses in mathematics or science while attending secondary school. Forty of those involved by disagreeing indicated they had trouble with these courses in Junior and Senior High School. Nineteen of the participants remained "Neutral" with regard to this statement.

Statement 27 read:

> The current rise in unemployment is the strongest obstacle to the movement of women into non-traditional jobs.

In Table 30 are data that show that 48 of the women involved in the research rate this statement as "Neutral"; they did not feel that the rise in unemployment would be

Table 30

**In General: Barriers to Access Encountered by Women Non-traditional Apprenticeship Programs**

| N | SN[1] | In General | Strongly Disagree | % | Disagree | % | Neutral | % | Agree | % | Strongly Agree | % | Missing |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 121 | 26 | No Math/Science difficulties in junior/senior high school | 9 | 7.4 | 31 | 25.6 | 19 | 15.7 | 42 | 34.7 | 20 | 16.5 | 1 |
| 121 | 27 | Current unemployment an obstacle for women moving to trades | 7 | 5.8 | 24 | 19.8 | 48 | 39.7 | 32 | 26.4 | 10 | 8.3 | 1 |
| 120 | 28 | More female communication among trades | 1 | 0.8 | 13 | 10.8 | 42 | 35.0 | 45 | 37.5 | 19 | 15.8 | 2 |
| 121 | 29 | Future: More women in Apprenticeship | 1 | 0.8 | 2 | 1.7 | 17 | 14.0 | 78 | 4.5 | 231 | 19.0 | |
| 119 | 30 | Women bring new spirit to work in trades | 2 | 1.7 | 2 | 1.7 | 22 | 18.5 | 61 | 51.3 | 32 | 26.9 | 3 |

SN[1] = Statement Number

an obstacle to women seeking apprenticeship training in a non-traditional trade. Forty-two of the participants "Agreed" with the statement and 31 "Disagreed." One participant did not rate the statement.

Statement 28 of Part IV of the instrument read:

> It would be very helpful to have more communication with other women in the trades.

In response to this statement, 64 participants "Agreed" that better communication between women in the trades would benefit both parties; 42 of the 120 who rated this statement were "Neutral"; and 14 "Disagreed" with the statement. Two of the 122 women failed to rate the statement.

Participants were asked to rate the twenty-ninth statement to determine if more women would enter an apprenticeship trade in the future. This statement read:

> I think that more women will enter the apprenticeship trades in the future.

In response to this statement, 101 respondents "Agreed" that more women will enter the apprenticeship trades in the future, while 17 respondents remained "Neutral" and 3 "Disagreed." One participant did not respond to this statement.

Statement 30 read:

> Women bring a new spirit of working together to some of the trades.

Ninety-three of the 119 participants who rated this statement "Agreed" that women working with men in a trade bring to the trade a new dimension of interaction; 22 of

those involved in the study were "Neutral" to this statement, and 4 "Disagreed" with it. The remaining three participants failed to rate the statement.

Following Statement 30, space was left for those involved in the research to provide comments they had to the barriers of women participating in non-traditional trades. Fifty-seven women in this study provided comments which could be placed in these three broad categories: Societal and Traditional Attitudes; Self-imposed Barriers; and the Inadequacy of Facilities and Apparel Design for Women in the Trades.

The first sub-category involved ideas and thoughts which the respondents held about societal and traditional attitudes. Social dictates prompting women to adhere to total sexual femininity is exemplified in the commercialization of the female through media promotion and advertisement for fashions, perfume, cosmetics, personal cleanliness, etc. This directly militates against the recruitment of women in the trades. Stereotypical thinking by the public who encounter female apprentices/journeymen is discouraging to these women who must then penetrate barriers of confidence and competence; the public assumes that women do not possess the skills or knowledge when they are trades persons.

The respondents described sexist male attitudes, along with patronizing behaviours, as promoting and constituting another barrier to trades women. Their

thinking reflects the existence of basic social inequality between men and women. Furthermore, trades people judge their peers by sex and not individual ability and intelligence. Gender-based discrimination was offered by a number of participants as emanating from older men, rather than younger co-workers whether male or female. However, discrimination of women by women was also mentioned as a barrier factor. The negativity that can surface from other women, according to some participants, originated in institutions such as schools that channel women into female-specific work pools. Sexist and stereotypical attitudes were cited as the biggest obstacle from both men and women. Public non-acceptance of women in the trades, coupled by a general perception that women cannot perform men's jobs, still persists.

The second comprehensive sub-category for this open-ended summary question involved barriers created by women themselves. These "self-selected" impediments occur for women whose personality blames others for their misfortunes. Most participants who mentioned women's self-imposed difficulties felt them to be grounded in a lack of self-confidence, as might be observed by women's constant requirement to "have to prove themselves," to do heavy, demanding and dirty work. Women themselves have built-in socialized barriers. To those respondents for whom that seemed to be the root problem, their immediate and follow-up recommendation was to remain determined to

get beyond these obstructions through an educational system that can demonstrate and teach about alternative work options. The absence of accurate and reliable counselling for women in schools was additionally cited as being a hindrance. One female participant opined that male chauvinism was still a major problem in any or all trades.

Embedded throughout the responses for this question were a number of intimations of the critical filter issue where women are seen, hired and promoted by large corporations and governments, but where these hiring policies merely reflect politically correct corporate behaviour. Two female respondents mentioned that the latter seemed more negatively predisposed to women where they may have been an enforced equal opportunity hiring mandate in order to compete for contracts. Several participants stated that not enough companies are hiring women because quite a few are non-equal opportunity employers and, among these, the perception stems from stereotypical thinking that women cannot handle the work. Therefore, not enough women are being hired by companies. A large obstacle occurs for women who are placed on the job in a trade where they are "tokens" and must endure men's negative attitudes.

A third sub-category involved discussion about the inadequacy of facilities and properly designed wearing apparel for women in the trades. The former makes itself evident when female trades people are required to make do

with make-shift facilities and where there is often no proper access to showers. The latter reflects the dearth of quality retail outlets which supply female tradespeople with safety gear and clothing including boots, work gloves, safety glasses, and hard hats.

General and non-specific ideas, comments and thoughts offered for this question are summarized randomly as follows:

> This questionnaire covered all the angles about women in non-traditional trades.
>
> The attitude of this questionnaire is a problem when it relates to show women journeymen as superior. Gender has not advantage nor disadvantage in the trades.
>
> Native female apprentices get away "with murder," making it harder for those women seeking equality with men in the trades.
>
> When a female apprentice experiences a shift of on-the-job trainers, a woman's success is placed in jeopardy for that part of her training and she can become discouraged by the various attitudes held by trainers about women in the trades.
>
> Barriers to the trades for women starts with a lack of career counselling at the high school level.
>
> The trades can and generally do offer pay equity thereby helping to raise women's self-esteem, provide financial freedom from men, and show that women can hold their own.
>
> The apprenticeships is an enjoyable and fulfilling and logical avenue for women to earn a living.
>
> Instructors teaching apprentices in the technical areas of their trades would help female apprentices feel less overlooked by making eye contact with them too.

Private small companies abuse the apprentice programs and apprentices. This serves as a deterrent to female apprentices remaining in their chosen trades.

In the trades, it is competence, not gender, that is important. It provides for equal pay for work of equal value. Pay equity is a non-negotiable item.

Barriers are also created by negative treatment by female co-workers.

Some women create their own problems by expecting preferential treatment. Male co-workers can be both helpful and unhelpful. Language in the trades can be coarse and one needs to accept jokes and slang descriptions shared among male co-workers.

Women and men in the trades can work together without sexist jokes and hazing tricks played on the female workers. This choice of work for a woman who shares parenting with her spouse makes for hard work.

Women entering the trades are enterprising and career-minded. Time and social conditions will remove the barriers to women entering the trades.

Women in the trades are proving their equal ability with men.

The flexibility of pre-trades schooling, coupled with apprenticeship work experience in order to achieve journeyman status, was a plus for me.

Sexism in the classroom continues to make the way harder for future women entering the trades.

In the trades, women work harder to prove themselves to be like a man. Eventually she will get the reward of respect from her peers and employers.

Equal work for equal pay doesn't always apply, because being a woman can still mean being paid less.

Women need to be able to market themselves so that initial contact with a perspective employer is not so tough. Women will still feel

employers' fear that their motive for entering the trades is to "hunt" for a marriage partner.

Barriers exist for women through unemployment and their own misconceptions due to their unawareness of work in the trades.

Women don't understand male majority. They ought to tone down the term "women" in trade jobs. Women can do trade jobs. Camaraderie can develop from understanding, and developing a sense of humour can reflect humanity.

The key to overcome obstacles is a woman's need and ability. Work competency will pay off for women as they increase the trust base with their employers.

Job site problems occurred for me on a government site.

Problems for women occur through their self-image.

Single parenting women should be discouraged from entering the trades because the required urban school training and shift work can be hard on kids.

## Questionnaire Summaries

This summary overview contains the abstractions of the non-cross tabulated data so far examined and analyzed. It comprises Parts I to IV of the questions found within the questionnaire. It also includes synopses of the open-ended comments shared by the participants.

### Part I - Employment History and Personal Information

The participants in this study were predominantly single women (36.1%) between the ages of 26 and 30 years (32.8%) with at least a high school education (29.5%).

These women were supporting no one other than themselves (43.8%), most do not require any type of child care (74.6%) but, for those who did, they did not find child care a problem (69.6%) and tended to use a combination of family and sitter (22.6%). Just over one-third of participants were between the ages of 20 and 25 years when they entered their apprenticeship program (36.1%). The majority were still apprentices (68.6%), but over half were no longer with their initial employers (55.4%). Participants also indicated that, of the categories listed, their previous occupational classification prior to an apprentice was usually in the service sector(29.2%).

Of the 122 participants, 34 described their preoccupation with child and day care facilities, their lack of and/or the combination of their utilization of public non-profit, private businesses, and the additional utilization of family members, along with babysitters. These 34 respondents consisting of married or single mothers expressed concerns about: the quality of care to be found among the various facilities; anxiousness of finding a good match of care personnel and facility; accessing a facility that would accommodate the early and irregular working hours demanded of apprentices in some of the trades; awareness that access to universal day care facilities would greatly enhance women's career choices and opportunities; maternal consternation over illness and

a mother's need to be with her child; and, finally, society's negative image of women working when their children are very young. The respondents also expressed their concerns about cost factors and the penalization of those women who use pro-rated day care facilities when weather conditions impact their trade work.

Part II - Apprenticeship Information and Open-ended Comments

Two-thirds of the participants indicated that they had been encouraged by someone to enter a trade (66.9%) and almost half had been encouraged by a friend (48.1%). Three-quarters of the participants indicated that no one had tried to discourage them from entering a trade (75.2%), but for those who had been discouraged, half indicated it had been by a friend (50.0%). Almost all of the participants indicated that they would encourage other women to enter either their trade (94.2%) or another trade (97.4%). Most of the participants indicated that they were not members of a union (83.5%) and were not aware of their local apprenticeship committee meetings (94.8%). Half of the participants were indifferent to the term "journeyman" (50.4%) and over one-third approve/ strongly approve (24.8% and 17.1%, respectively).

In addition, 96 women in this study shared their thoughts about the critical incident in their lives which prompted them to choose apprenticeship training as a

career choice. Four broad and similar themes which emerged from the various comments seemed to typify this population's reasons for entering an apprenticeship program.

Firstly, the women found themselves fatigued and bored with traditional gender-based social expectations that clerical work should fulfil their creative needs, while at the same time playing roles of "helpmates."

Secondly, many of the women had invariably known of their innate mechanical aptitude, self-identified since childhood.

Thirdly, the women have gained intrinsic awareness that work, such as can be found among the trades, is a major source of career choices and opportunities due to the fact that it does and will pay women equally for work of equal value. By extension, the certification aspect of the apprenticeship training implied future job income and security. This factor was valued and repeatedly emphasized. In addition, this factor was implicitly cited as a provision of immediate income for themselves as well as a personal economic requirement for 22% of those women of the study who support a dependent besides themselves.

Finally, such other factors as divorce and unemployment were contributing factors that enticed the women to become involved in an apprenticeship program, as well as the fact that technical training in the trades provided concrete lead-into competency on the job. For

these women, opportunity presented itself variously in business, government, institutions, and in industries such as Syncrude, Alberta Government Telephones, Ontario Training Institutes, Access Initiatives, and Northern Alberta Institute of Technology, among others.

Some participants noted their opinion on skills acquisition made possible through apprenticing, viewing such experiences as examples of life-long learning reinforced, in turn, by value and merit and the recognition that the transferable skills which they had acquired prior to entering the trades were applicable and added value to their newly found work, thereby boosting their self-esteem. Some of the women felt that the trades provided an escape from seasonal employment problems and provided a route through which to overcome financial hurdles for self-education and support.

Other topics touched on by this study's survey population in their written comments included the fact that the trades can provide rural women the opportunity to achieve technical training, although relocation to do so appeared problematic. For the small number of university-educated women of this study, the trades provided another source or an alternate avenue for work that is well paid. There were a small number of women who alluded to other, less positive outcomes of their choice to enter the trades, which concerned their observations with peer co-workers. These women felt that trade work and direct

skills gained through jobs in the trades would improve women's communication with the opposite sex; nevertheless, for some the all-male work place seemed overwhelming and uncomfortable. A number of women also viewed the work done by women as mutually exclusive with maternity concerns. For those women who had negative on-the-job training experiences, the issue of small business employer non-commitment to sustained apprenticeship program involvement was cited as a reason for training discontinuity.

Part III - Apprenticeship Schooling Experiences

The majority of the participants were satisfied/very satisfied with the apprenticeship training which they received during their first (49.5% and 40.0%, respectively), second (62.0% and 29.6%, respectively), third (48.8% and 39.0%, respectively) and fourth (40.0% and 33.3%, respectively) periods. Most participants were also able to relate what they had learned during their apprenticeship training to their everyday job duties (91.0%) and indicated that their training also helped to improve their job performance (92.4%). More than three-quarters of the participants indicated that they did not have any female instructors during their technical training (86.7%).

At least two-thirds of the participants indicated that they did not have to relocate to another location to

attend school during their first, second, third and fourth periods of technical training (68.3%, 67.1%, 64.3% and 75.0%, respectively). The number of other women attending technical training classes ranged from 0 to 6, with most participants reporting that there were no other women attending their classes during their first, second, third and fourth periods (42.6%, 47.1%, 37.5% and 75.0%, respectively).

## Part IV - Barriers to Women Seeking Employment in the Non-traditional Trades

### Entering the Trades

With respect to entering the trades, approximately half of the participants feel that the public's perception of women in non-traditional trades is generally positive (55.8%), that increasingly more women are finding their choices of work among the trades (52.9%), that education to promote women in non-traditional jobs has strengthened women's confidence to do the trade jobs (57.9%), and that they decided to get a skilled job because there was no future in what they were doing previously (58.2%).

### Experiences on the Job

Regarding experiences on the job, most participants feel that their sense of accomplishment for work well done was an important part of their chosen trade (95.9%), that they were not hired to be the "token woman"

(84.4%), that on the whole, their work environment did not bother them (84.2%), that heavy lifting, etc., was expected of both male and female trades persons (84.4%), and that they were comfortable with the level of respect they perceived from others (83.6%).

Approximately three-quarters of the participants felt that other male apprentices' perceptions of them were generally positive (76.2%), that treatment of both male and female trades persons in their place of work was about the same (74.3%), that on the whole, noise/dirt did not bother them (74.2%), and that they have done things they had never considered possible and it has changed their self-image (71.9%). Approximately two-thirds of the participants feel that the toughness of the male workplace atmosphere does not make working in the trades a problem for women (67.7%), that feedback on work progress is frequently given and discussed (60.0%), and that feelings of work pride and self-worth were encouraged in their work place (64.7%). Close to half of the participants feel that foremen and supervisors seem agreeable in the sharing of their roles with women who were proficient in their trade (44.1%).

Obstacles Toward Job Completion

With respect to possible obstacles toward job completion, most participants do not feel that trade work was too tough for women (95.0%) and that finding transportation to work or school was not a problem (96.7%

and 90.1%, respectively). Approximately three-quarters of participants felt that it was okay to make mistakes as an apprentice (72.9%). Approximately that number of women felt neutral on the access to day care and day care information (71.6%) as well as on maternity leave for women in non-traditional trades not being a problem (73.1%). Two-thirds of the participants were neutral when it came to access to union information and invitations to memberships (66.4%).

In General

When it involved general aspects of being a female apprentice, more than three-quarters of the participants thought that more women will enter the apprenticeship trades in the future (83.5%). Approximately half of the participants did not have any difficulty with Math/Science courses in secondary school (51.2%). Yet this sample of women also feel that it would be very helpful to have more communication with other women in the trades (53.3%). More than one-third of the participants were neutral about the current rise in unemployment being the strongest obstacle to the movement of women into non-traditional jobs (39.7%). Slightly fewer (34.7%) of the participants agreed that unemployment constitutes a strong obstacle to work movement for women into the trades.

In this segment of the questionnaire, 57 general statements were offered the researcher for additional consideration. It seemed that the foregoing parts of the

questionnaire had evoked issues and a flow of thoughts which required further hand-written explanations.

Again, three main focuses characterized these responses. Firstly, subtle and overt discrimination was cited as existing for women in the trades. Secondly, it was expressed that public educational institutions apparently continue to ignore labour market needs and those needs of women who wish to enter the trades. Thirdly, the concern was presented government and industry employers perpetuate the feeling of "tokenism" for some women.

Numerous respondents felt that the general public still holds women in the trades as non-valid. Some of the concerns expressed included the following. Women do encounter coarse, sexist language and jokes which they feel obligated to tolerate in order to be accepted as "one of the guys." Some supervisory personnel and employers go so far as to voice such opinions that women in the trades are motivated to be there as opportunities to find marriage partners. Male workers exhibit patronizing attitudes that sustain gender-based discrimination. Some women sense reverse discrimination from other female co-workers where the covert or non-supportive behaviour displayed reveals socially-based powerlessness manifested by women who feel that their first line of loyalty must be with those who exercise power over their lives, namely, men; attitudinally, the hoped-for outcome among these

women is the garnering of favourable status or promotions due to the perception of their non-power status.

Conversely, conditions of reverse discrimination also exist among women, where some of those women suffering the discrimination are of Native origin. The amelioration in favour of Native apprentices where work performance may result in serious safety consequences for all workers appears problematic.

With regard to the issue of work preparation toward this blue-collar sector, a number of women felt that schools seem to perpetuate the built-in socializing barriers, promoting increased ghettoizing of women in the work force. Curricular biases exist in their opinions when there are no vocational/technical options for female students. High school counsellors do not supply enough accurate and reliable counselling for young women seeking knowledge and career building information for women in non-traditional occupations. Implied here is also the notion that non-traditional work has not yet the social sanctions which women seek and therefore continues to relegate this kind of work to men who predominate this segment of the labour force.

Industries and government employers acting politically correct by hiring women still make women feel as "tokens" through subtle and non-subtle "enforcement" attitudes in the work place. These factors are often reinforced by the inadequacy of facilities such as women's

washrooms, or the lack properly fitting safety gear and work apparel for women. In the case of small business, abuse or infractions of the apprenticeship programs and apprentices act as deterrents for women who are just beginning to launch themselves into training for the trades.

## Discussion

The formal statements in Parts I to IV of the questionnaire clearly yielded a positive profile of the sample. Young, single and unencumbered by dependents, these female apprentices surfaced very few obstacles chronicled by the literature. However, the open-ended and additional descriptive responses provided the writer with perspectives rendered impossible by the formal nature of the questionnaire. The open-ended statements allowed personally deeper and more textured details to surface. These details endowed this study with the most interesting and unexplained findings.

The findings of the study were subject to the methodology previously explained in Chapter I. A direct example can be seen in the series of Likert questions, which suggested that the sample of women did not feel for the most part that they had to face barriers. Yet their open-ended statements revealed that, indeed, women do perceive barriers to exist for them. The inconclusiveness of the study findings may suggest that much more

exploration is warranted in this area in order to determine why more women do not enter this kind of non-traditional work.

Since neither the methodology, i.e., the Likert scale, nor the open-ended responses invalidates the findings of the research, some exploratory thoughts may be in order here to ascertain the reasons for the disparity of the findings. The Likert scale and the open-ended responses merely present different perspectives. As pointed out earlier, the demographic data reveal a sample predominantly comprised of younger women, women who have already learned to overcome such barriers as guided by their personal make-up and personality traits. Given their possible self-identified aptitudes and appetites for "things mechanical," these young apprentices may also have been less susceptible to barriers identified by the literature. Their comfort levels to be "like the boys" may have undergone personal practice in order to prove their toughness, that is, as young girls they may have been "Dad's little helper" because they showed promising manual dexterity. As part of these possible socializing experiences, these young women did not perceive such barriers as were discussed in Parts I to IV.

The variant picture presented by the open-ended statements nonetheless presents glimpses of what may have been foremost in the minds of these apprentices when considering their status within the trades. While there

were only 34 of the 122 participants who were preoccupied with child and daycare facilities, they did, however, express five major concerns about child care; these included: the quality of care to be found among the various facilities; worry about finding good matches of care personnel and facilities; access to daycare facilities for those children of tradeswomen whose work created irregular working hours; the burden which society still places on women negatively when they have small children, and also the need to work; and, finally, the concerns that arise over care costs and the penalization of those tradeswomen who use care facilities where pro-rated fee schedules are in effect.

Additional concerns expressed in the open-ended question in Part IV intimated the existence of hurdles presently perceived by this sample of women; these hurdles included: the existence of subtle and overt discriminatory treatment; absence of education institution programs for young women who elect or desire vocational courses; the perpetuation of the feeling of "tokenism" when women work on sites where government contract programs enforce the equity clause; the non-verbal and verbal signals which women still perceive when their role as "tradesman" is invalidated through stereotypical public behaviour; the tacit presupposition that coarse, crude and sexist jokes and language must be tolerated by all "tradesmen"; and the realities of poor or non-existent job-site facilities and

washrooms, along with the dearth of safety equipment and personal wearing apparel.

These issues, as revealed by their thoughts in the open-ended comments provided by the apprentices of this study, do show that barriers still exist for women entering the non-traditional trades. This would suggest that much more exploration needs to be conducted to ascertain why women are not entering the non-traditional trades in larger numbers, what work conditions exist both for women and men in the trades, which deflect them from choosing employment in the trades; and, what concrete suggestions might be made by experienced female tradespersons were they to reflect on their trades experiences.

# CHAPTER IV

# SUMMARY, CONCLUSIONS, RECOMMENDATIONS AND OBSERVATIONS

The final chapter of this thesis contains the summary, conclusions and recommendations based on the findings, as well as observations made by the researcher while conducting the study. The first section summarizes the research study; the second section discusses the conclusions derived from the study; the third section deals with recommendations for further research; and the final section includes observations made by the researcher as the study was being conducted.

## Summary

The major purpose of this research study was to identify the barriers encountered by women who seek apprenticeship training in non-traditional trades in Alberta.

Clearly stated, this study sought to find out from its research findings and existing literature whether or not gender bias exists as a significant indication or possible contributing factor to the small number of women who follow apprenticeship training allowing them employment in the non-traditional trades.

The study was guided in part by examination of the literature that elucidated potential barriers which may be placed by employers, fellow students and co-workers who confront women who attempt entry into training in non-traditional trades. From the literature examined, social factors or outside forces such as societal influences which impact women who elect non-traditional trades was also examined.

Two main indicators guided the literature review for this study: literature which defined the last two decades of the 1970s and 1980s, and a pool of female apprentices currently enrolled in non-traditional apprenticeship programs who were identified from a data bank made available for this research by authorities from the Access Initiatives Branch of the Apprenticeship and Trade Certification, Alberta Career Development and Employment.

The contextual framework which guided the above search derived its basis from three social areas that included: those human rights issues that form a matrix of systemic exclusion to women who want to work in the non-traditional areas of labour; implicit and explicit economic issues touching women's lives which direct them to make job or career choices outside of the stereotypical norm; and demographic data that describes percentages and frequencies of those women who want "non-traditional" work such as found among the trades.

## Conclusions

Even though the surveyed sample of female apprentices generally depicted non-problematic portraits of themselves in the survey results, the conditions of the non-traditional work which they had chosen for themselves among the trades revealed the existence of barriers nonetheless. Implicit in the embedded ideas shared by these women through open-ended responses were factors and issues that continue to show very low entry levels from among the female work population in general into the non-traditional trades. This accounts for the very small number of women (less than 10% over a three-year overall period of time, as reported by the annual reports of Career and Employment Development), as well as the small number of actual technical classroom enrolments among the institutes of the non-university post-secondary education sector where this form of training takes place.

While improved educational awareness campaigns and provincial legislation have raised public and institutional consciousness around the needs of equity work opportunities for women and how women can access them, much continued work is required to convey to women that work they have chosen does not merely carry personal value and worth, but is important to the social and economic context as well. The women in this study -- as implied by the literature -- still consider themselves disempowered, evidenced by their motivations for trade

entry to fulfil a need to prove to their male counterparts that women need, want and know how to do this type of "non-traditional" work -- work where the results produced carry as much significance for them as does the feeling of positive self-regard.

Besides seeking well-being and economic independence, the apprentices in this study expressed curiosity and enthusiasm for this sort of work, which signifies the unmet and untapped human resources possibilities for workers in general and women in particular. For the majority, working at this kind of skilled work had changed them and allowed them to see other facets of themselves heretofore not contemplated by the apprentices. In turn, they gained self-reliance, particularly if and when their level of skill promoted taking charge and making required decisions that mattered. This group of women also envisioned that more women, through role models and in increased numbers, would make the non-traditional aapprenticeships non-threatening quarters for future workers. This "critical filter" aspect in the trades seemed also to be an implicit awareness factor in their emphasis of those others who had encouraged them to enter the trades, even though a number of friends and opposite-sex family members had made an attempt to discourage them.

Regardless of marital status, such as single, married or divorced, the women in this study knew that the

opportunities presented to them through formal certification available within a trade would provide them with social mobility and security during a time of sweeping changes in job security and job markets. As such, work among the trades presented an escape from dead-end, ghettoized job pools.

A few women in this study also addressed the issue of capturing the trades as a venue of skills, knowledge and retraining for the mature, mid-life career seeker (women, for example, from isolated rural and ailing farming communities).

## Recommendations

The recommendations drawn from the findings and conclusions of this research study are presented as follows,

### Education and Technical Instruction

1. General training modifications may include the use of school personnel as catalysts for change as well as to intensify awareness programs to offer better hands-on networking support above and beyond mere dispensation of information.
2. A concerted effort must be made by teachers and teacher preparation institutes as early as the pre-elementary grades to stimulate girls as well boys in

their curiosity and appetite for mathematics and sciences.

3. Planners and curriculum designers within Alberta Education should make a greater effort to include in the Mathematics and Science curricula the practical application of the principles of these two subject areas to everyday life as well as the work life of the individual.
4. Teachers of Mathematics and Science at the secondary school levels should actively recruit girls to enrol in their courses so that girls develop a better understanding of these two subject areas.

Apprenticeship and Trade Certification

1. The Branch must step up its active and vigorous promotional campaign using print and non-print media throughout the province in order to inform women of the opportunities that are available through the non-traditional trades.
2. Those individuals responsible for the Access Initiatives and experienced female role models must be allowed to visit in the secondary schools in order to inform high school students of the opportunities available to them through the apprenticeship system by sending female apprentices to these schools as part of a support campaign from ACCESS Initiatives.

3. The Executive Director's Report of Apprenticeship Branch and Trade Certification should reflect enrolment statistics for women in apprenticeship programs in separate tables so that these statistics are no longer integrated into other tables.
4. Personnel of the Access Initiatives Branch of Apprenticeship and Trade Certification should make available a current list of employers who may want to indenture women as apprentices.
5. That Apprenticeship Trade and Certification, in its ongoing awareness programs, should prepare a brochure showing the structure and the organization of the Branch; its purpose would be to inform the apprentices of the committee structure under which the Board operates and the various recommendations made by the Board to the Minister of Career Development and Employment.
6. Funds must be made available for researchers to investigate the various phases of apprenticeship training.
7. An advocacy committee might be struck between the offices of the Minister of Career Development and Employment and the Minister for the Status of Women, for the purpose of increased communications, exchanges of legislation and awareness.

Employers

1. Associations such as the Alberta Contractor's Association should develop liaisons with persons in the Access Initiatives Branch of the Apprenticeship and Trade Certification in order to make known to the Branch the need for women in the non-traditional apprenticeships.
2. Large and small employers should form a consortium for the production of print and non-print promotion and awareness-making materials featuring women who are employed in the non-traditional trades. These materials, once produced, should be made available to secondary school teachers for their guidance programs.

Women and Men in Society

Women and men must become aware that the option exists to minimize -- rather than maximize -- sex differences through socializing practices. The social institutions which are in place, and the social practices in use, are not merely a reflection of the biologically inevitable. As human beings, women and men are, after all, those who select and foster the lifestyles which they most value.

Recommendations for Further Research

As a result of this study, the following recommendations are made to researchers who wish to conduct a similar study to this one:

1. That more research from a number of different perspectives and within different methodologies be done, i.e. methodology using an open-ended questionnaire.
2. That this study be replicated using a larger sample of women enroled in apprenticeship programs for non-traditional trades.
2. That a longitudinal study be conducted with girls in Grades 7, 9 and 12, which follows them until two years post-graduation to determine whether or not they have met their occupational aspirations. A comparable sampling from men might constitute a similar study.
3. That a study be conducted, on a national basis, to ascertain the barriers facing women in non-traditional trades and to compare these results with other studies to determine similarities or dissimilarities.

## Observations

OECD and other research sources predict that by the turn of this millennium, women will comprise more than 50% of the workforce in Canada. While Statistics Canada (1991) reports that national apprenticeship programs in

general are ailing and in dire need of reform, there exist, commensurately, areas in the trades where technology has produced an increased need for highly skilled, competent and knowledgeable workers.

Nevertheless, until recently, little was formally researched, and then only among small samplings; little is still known, therefore, about non-traditional occupations where fewer than 33% of the workers are women. Training modifications are proving to be increasingly desirable; they must involve all strata of society and, as seen from such Royal Commissions Papers as the 1985 MacDonald Task Force, must begin with mandates through the Councils of Ministers of Education and Ministers Responsible for the Status of Women. Jointly, these offices can promote monitoring bodies who possess substantial independent research capacities in tandem with provincial educators and local governments. Additional funding should be provided by provincial-federal levels of education to provide programs for a skilled labour force based on research findings and needs assessments. Vigorous and ongoing promotion through bridging and pre-vocational programs might also enlist prospective large and small employers who comprise the skilled labour-training matrix in Canada's economy.

Governments should also make provisions for pre-training programs in the areas of literacy, numeracy and pre-employment skills so that women can gain access to

regular training programs. This is possible under the purview of Employment and Immigration Canada through their Labour Market Services, and through Employment Equity, thus exercising their role in placing women in employment and allowing women to make real progress through practical application of equity legislation. The continued expansion and reworking of Employment Equity rules and the Federal Contractors' Programs is a necessity, since most employers possessing antiquated attitudes will not hire women and other target groups to do work which has traditionally been gender or racial-stereotyped. Respectively, adequate allowances and sufficient funding must be provided to ensure ultimate integration of participants within the community and its resources, instructors, work placements, transportation, honoraria, on-site childcare and appropriate childcare allowances.

It is imperative that parents and educators monitor and lobby to change the images of women and girls by creating more positive images for girls to emulate, possibly through the creation of various networks for female students in non-traditional work. Both groups might lobby for vigorous promotion and marketing to increase the awareness that the trades offer occupations yielding above-average incomes, as well as providing challenging work and excellent employment security.

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APPENDIX A

LETTERS:

Request by Researcher for Access to Data Base;
Letter of Response;
Letter to Study Population by Collaborative Researchers
Covering Letter to Research Population

QUESTIONNAIRE

INTERVIEWS CONSENT FORM

FOLLOW-UP LETTER

SAMPLE CONTRACT

University of Alberta
Edmonton

**Adult, Career and Technology Education**
Faculty of Education

Canada T6G 2G5

633 Education South, Telephone (403) 492-3678
Fax (403) 492-0236



December 18, 1990

Mr. Gerry Denhart
Acting Director
Access Initiatives, Alberta Career Development and Employment
Apprenticeship and Trade Certification
10th Floor, City Centre,
10155 - 102 Street
Edmonton, Alberta T5J 4L5

Dear Gerry:

I am writing to thank you for the generous amount of time you and Benjamin took on Monday from your busy schedule to meet with me and to allow me to discuss with you my research design and the involvement of the Branch in various phases of the research. From our meeting, I hope that you have a better understanding of the research. Basically, the research is to identify barriers that prevent women from entering non-traditional apprenticeship occupations.

After leaving the meeting, I spent some time in the library where I was well received, and I was impressed with the holdings in that facility. At some future date, I anticipate that I will spend considerable time going through these holdings as I conduct the review of the literature and related research.

I would like to reconfirm, as we discussed, that I will be granted access to the data base of the Branch when so requested. The information which I would like to secure from the data base deals specifically with those women who are apprenticing in non-traditional occupations, so that I can select my research sample.

I can assure you that any data which is provided me will be used for research purposes only, and will be treated as privileged information. I look forward to collaborating with you in those phases of the study which may involve the Access Initiatives Branch.

The best of the holiday season to you and members of your Branch.

Sincerely yours,

H.M. Follis

H.M. Follis
xc. Mr. D. Bell

Alberta
CAREER DEVELOPMENT
AND EMPLOYMENT
Apprenticeship and Trade
Certification

File No.

10th Floor, 10155 - 102 Street, Edmonton, Alberta, Canada T5J 4L5 403/427-8765

January 3, 1991

Ms. Heidi Follis
Adult, Career and Technology Education
Faculty of Education
University of Alberta
633 Education South
Edmonton, Alberta
T6G 2G5

Dear Ms. Follis:

In response to your letter of December 20, I would like to clarify the Department's role in your research into barriers faced by women in non-traditional occupations, and propose a method of assisting your research and enhancing your survey results.

As was discussed during our meeting, the Programs Support Branch of Apprenticeship and Trade Certification has recently investigated the status of women registered in the database in non-traditional trades as final period and recently graduated apprentices, and found this population to consist of approximately 275 women, as of January 1, 1991.

This recent investigation of women in the apprenticeship database was conducted on an ad hoc basis, when Mr. Robert Beaune, a N.A.I.T. instructor and graduate student at the University of Calgary, approached Access Initiatives proposing to survey female apprentices for his research and share his results with our Branch, contingent upon our approval of his questionnaire.

Programs Support has expressed some concern that continual release of the names and addresses of a small, specific group of apprentices may be taken by some as a form of harassment or violation of privacy. For this reason it has been suggested that you and Mr. Beaune establish some form of working relationship and prepare a questionnaire in tandem covering both of your research areas. This could then be sent to the entire population of 275 apprentices, revealing more in-depth information, as well as providing Access Initiatives with valuable information for planning future activities.

I hope this suggestion interests you. As you and Mr. Beaune are undertaking similar research, and are working along roughly the same timelines, I believe it is the most satisfactory way available for suiting the needs of all concerned. Please contact me if you would like to discuss this matter further.

Sincerely,

G F Denhart

Gerry Denhart
Director
Access Initiatives

GFD/byd

cc. Don W. Bell
Wayne Nixon
Robert Beaune

P.S. Mr. Beaune can be reached at N.A.I.T. at 471-7866.

Alberta
CAREER DEVELOPMENT
AND EMPLOYMENT
Apprenticeship and Trade
Certification

File No.

10th Floor, CityCentre, 10155 - 102 Street, Edmonton, Alberta, Canada T5J 4L5 403/427-8765

April 1991

Dear Apprentice/Journeyman:

Apprenticeship and Trade Certification has been approached by University researchers interested in studying the experiences of women who are currently in apprenticeship training programs, or have recently completed their apprenticeship, specifically in those trades considered non-traditional for women.

In the interest of planning future initiatives in Apprenticeship and Trade Certification, you are invited to participate in this brief survey and share any comments that you feel may be useful in this research. I wish to assure you that your responses will be kept in strict confidence, and that all individual records will be destroyed at the end of the survey. On the following pages, the researchers will explain the questionnaire in greater detail.

On behalf of Alberta Career Development and Employment, I wish to thank you for your time and cooperation in support of this valuable research project.

Sincerely,

C. Wayne Nixon
Director
Educational Technology Branch and
Apprenticeship and Trade Certification Board Secretariat

CWN/byd

enclosures

March 8, 1991

To: Women in Alberta Apprenticeship Training in Non-traditional Occupations

From: Heidi Follis
Bob Beaune

Subject: Research Survey Form (attached)

By now you may be feeling swamped with the attention which you have received because you have chosen to pursue a career in a trade where few women can be found. Your experiences in apprenticeship training can provide very helpful information to other women who want to follow in your footsteps. We hope that the attached short survey will give us insight into your experiences.

The purpose of this research is to uncover those factors that may better explain why so few women decide to seek jobs and careers in trades traditionally considered "men's work." This study is being conducted with the cooperation of Alberta Apprenticeship and Trade Certification.

As part of this research project, we also wish to interview some of your (requiring a maximum 30 to 45 minutes time frame) to provide us with additional information about your experience as a tradesperson.

The attached Interview Consent Form is your agreement for contact by us to make an appointment with you at your convenience. Should you wish to withdraw from the research at any time, you may do so without prejudice. The Survey and the Interview will be held in strictest confidence.

We thank you for your generosity with time, interest and cooperation in this study.

230

## DIRECTIONS TO THE PARTICIPANTS

*Please find attached a questionnaire that should take approximately one half hour to complete. The questionnaire is divided into four parts.*

*You have been identified by Access Initiatives as being enrolled in a non-traditional occupation and therefore most able to identify experiences that women like yourself encounter. For the purpose of this study, the term "non-traditional" refers to those occupations in which the large majority of workers are male.*

*When you have completed the questionnaire, please place it in the enclosed, self-addressed envelope and mail it back to us.*

*Your time and cooperation with this study are greatly appreciated.*

---

## Part I
## Employment History and Personal Information

Please respond to the following questions by selecting the appropriate choice.

For Office Use Only

A. What is your present age?

| | | |
|---|---|---|
| ____ | 1. | Less than 20 years |
| ____ | 2. | 20 to 25 years |
| ____ | 3. | 26 to 30 years |
| ____ | 4. | 31 to 35 years |
| ____ | 5. | 36 to 45 years |
| ____ | 6. | Over 45 years |

[ ][ ][ ][1]

5

B. What is your marital status?

| | | |
|---|---|---|
| ____ | 1. | Single |
| ____ | 2. | Married |
| ____ | 3. | Separated |
| ____ | 4. | Divorced |
| ____ | 5. | Other_____ |

6

C. How many people depend on you for financial support?

| | | |
|---|---|---|
| ____ | 1. | Self |
| ____ | 2. | Self and one other |
| ____ | 3. | Self and two or more others |
| ____ | 4. | Share financial support with other family members |
| ____ | 5. | Other_____ |

7

PLEASE TURN THE PAGE

For Office Use Only

D. What type of child care services do you use? If you do not require child care services, please proceed to question E.

_____ 1. Family
_____ 2. Babysitter
_____ 3. Private day care facility
_____ 4. Government-sponsored day care facility
_____ 5. Employer-sponsored day care facility
_____ 6. Other_____ 8

E. Do you find child care to be a problem while working? Please comment.

_____ 1. Yes
_____ 2. No

Comments:_____ 9

_____

_____

_____

F. What was your educational level prior to starting your apprenticeship?

_____ 1. Did not complete high school
_____ 2. Graduated from high school
_____ 3. Attended technical school or community college, but did not graduate
_____ 4. Graduated from technical school or community college
_____ 5. Attended university, but did not graduate
_____ 6. Graduated from university
_____ 7. Other_____ 10

G. What was your age when you started your apprenticeship?

_____ 1. Less than 20 years
_____ 2. 20 to 25 years
_____ 3. 26 to 30 years
_____ 4. 31 to 35 years
_____ 5. 36 to 45 years
_____ 6. Over 45 years 11

H. Are you still an apprentice?

_____ 1. Yes (if yes, please proceed to question L; otherwise, continue)
_____ 2. No, I am now a journeyman
_____ 3. No, I am no longer working in the trades 12

I. Are you still working for the employer with whom you first apprenticed?

_____ 1. Yes
_____ 2. No 13

232

For Office Use Only

J. If you answered "no" to question I, for how many employers have you worked since then?

____ 1. One
____ 2. Two
____ 3. Three or more

14

K. If you have been unemployed at any time since obtaining your Journeyman Certificate, please list briefly the periods of unemployment and state briefly the reason for unemployment (for instance, laid off, return to school, maternity, travel, or other):

| Period of Unemployment (Mo./yr. - Mo./yr.) | Reason |
|---|---|
| 1. _____ | _____ |
| 2. _____ | _____ |
| 3. _____ | _____ |
| 4. _____ | _____ |

22

L. Are you still working in the trade in which you started your apprenticeship?

____ 1. Yes
____ 2. No

23

M. If you answered "no" to question L, why did you quit working in that trade?

_____
_____
_____

24

N. What is your present annual wage?

____ 1. Less than $20,000
____ 2. $20,000 to $29,999
____ 3. $30,000 to $39,999
____ 4. $40,000 to $49,9999
____ 5. Over $50,000

25

O. What was your wage before you started your apprenticeship?

____ 1. Less than $20,000
____ 2. $20,000 to $29,999
____ 3. $30,000 to $39,999
____ 4. $40,000 to $49,999
____ 5. Over $50,000

26

PLEASE TURN THE PAGE

For Office Use Only

P. What was your occupational classification before you started your apprenticeship? Please check the one at which you spent the most time.

----- 1. Professional
----- 2. Medical
----- 3. Service
----- 4. Trades
----- 5. Other _____ 27

(Please proceed to Part II)

## Part II
## Apprenticeship Information

Before responding to the following questions, please relate, in one or two paragraphs, the most significant event or experience which influenced your decision to take an apprenticeship. Please feel free to use additional paper.

28

A. How did you obtain your apprenticeship?

----- 1. Contact with a new employer
----- 2. Bid on apprenticeship from existing employer
----- 3. Through family business
----- 4. Other (please specify) _____ 29

For Office Use Only

B. Prior to starting your apprenticeship, did you have any formal training in that trade?

---- 1. Yes
---- 2. No

30

C. If you answered "yes" to question B, what type of training was it?

---- 1. High school vocational education course
---- 2. A pre-trades program
---- 3. A technical certificate program
---- 4. A trades for women program
---- 5. Other (please specify) _____

31

D. Are any other members of your family in the trades?

---- 1. Yes (relationship) _____
---- 2. No

32

E. If you answered "yes" to Question D, are they in your trade or in another trade?

---- 1. Your trade
---- 2. Another trade (please specify) _____

33

F. Prior to obtaining your apprenticeship, did you have any female friends who were in the trades?

---- 1. Yes
---- 2. No

34

G. If you answered "yes" to Question F, are they in your trade or in another trade?

---- 1. Your trade
---- 2. Another trade (please specify) _____

35

H. Please describe briefly why you became interested in your trade.

_____

_____

_____

_____

36

I. Did anyone encourage you toward making the decision to enter a trade?

---- 1. Yes
---- 2. No

37

**PLEASE TURN THE PAGE**

For Office Use Only

J. If you answered "yes" to Question I, who encouraged you to make that decision?

---- 1. Friend
---- 2. Father
---- 3. Mother
---- 4. Another relative
---- 5. Teacher
---- 6. Counsellor
---- 7. Other (please specify) _____ 38

K. Did anyone discourage you in making the decision to enter a trade?

---- 1. Yes
---- 2. No 39

L. If you answered "yes" to Question K, who discouraged you?

---- 1. Friend
---- 2. Father
---- 3. Mother
---- 4. Another relative
---- 5. Teacher
---- 6. Counsellor
---- 7. Other (please specify) _____ 40

M. Would you encourage other females to enter your trade?

---- 1. Yes
---- 2. No 41

N. Please state the reasons for your answer to question M.

_____
_____ 42

O. Would you encourage other females to enter another trade?

---- 1. Yes
---- 2. No 43

P. If you answered "no" to question O, why not?

_____
_____ 44

Q. If you answered "yes" to Question O, which trade(s) and why?

_____
_____ 45

For Office Use Only

R. Are you a member of a union?

----- 1. Yes
----- 2. No
----- 3. No comment 46

S. Are you aware of your local apprenticeship committee meetings?

----- 1. Yes
----- 2. No 47

T. How do you feel about the designation "Journeyman" as it applies to women working in the trades?

----- 1. Strongly approve of this designation
----- 2. Approve of this designation
----- 3. Indifferent to this designation
----- 4. Disapprove of this designation
----- 5. Strongly disapprove of this designation 48

U. If you disagree with the designation "Journeyman," what other term would you suggest?

_____

_____ 49

(Please proceed to Part III)

## Part III
## Apprenticeship Schooling

A. Please rate your satisfaction with the apprenticeship training you received:

| | Level of Satisfaction | | | | |
|---|---|---|---|---|---|
| Year | Very Satisfied | Satisfied | No Opinion | Dissatisfied | Very Dissatisfied |
| 1st | 5 | 4 | 3 | 2 | 1 |
| 2nd | 5 | 4 | 3 | 2 | 1 |
| 3rd | 5 | 4 | 3 | 2 | 1 |
| 4th | 5 | 4 | 3 | 2 | 1 |

53

For Office Use Only

B. The course content which you completed at school that dealt with your trade was:

_____ 1. Easy
_____ 2. About right
_____ 3. No opinion
_____ 4. Difficult
_____ 5. Very difficult

54

C. What parts of the course content (theory, shop, related subjects, etc.) did you find the easiest? Why?

_____

_____

_____

55

D. What parts of the course content (theory, shop, related subjects, etc.) did you find the most difficult? Why?

_____

_____

_____

56

E. Rate the quality of the training materials (handouts, instructional packages, etc.) which you received during your training:

_____ 1. Low quality
_____ 2. Fair quality
_____ 3. No opinion
_____ 4. Good quality
_____ 5. High quality

57

F. Were you able to relate what you had learned during your apprenticeship technical training to your everyday job duties?

_____ 1. Yes
_____ 2. No

58

G. Did the apprenticeship technical training help to improve your performance on the job?

_____ 1. Yes
_____ 2. No

59

H. Did you have any female instructors during your apprenticeship technical training?

_____ 1. Yes
_____ 2. No

60

For Office Use Only

I. Did you have to temporarily relocate to another location in the province to attend school (the technical training component of your apprenticeship)?

| | | |
|---|---|---|
| 1st year | ____ a) Yes | ____ b) No |
| 2nd year | ____ a) Yes | ____ b) No |
| 3rd year | ____ a) Yes | ____ b) No |
| 4th year | ____ a) Yes | ____ b) No |

64

J. In each of your school years, how many other females were in your class?

1. 1st year ____
2. 2nd year ____
3. 3rd year ____
4. 4th year ____

65

K. While attending school, were you faced with additional problems of child care? Please comment.

____ 1. Yes
____ 2. No

_____

_____

_____

_____

66

L. What kind of child care services did you use while attending school?

____ 1. Did not require child care
____ 2. Family
____ 3. Babysitter
____ 4. Private day care facility
____ 5. Government-sponsored day care facility
____ 6. Day care facility at the educational institution which I attended
____ 7. Other (please specify) _____

67

M. Did you feel comfortable talking to your male classmates about your apprenticeship training and work experiences? Please comment.

____ 1. Yes
____ 2. No

_____

_____

_____

_____

68

(Please proceed to Part IV)

PLEASE TURN THE PAGE

## Part IV
## Barriers to Access Encountered by Women Seeking Employment in Non-traditional Trades

For each of the following statements, please indicate, by circling, whether you agree or disagree with the statement, using the following scale:

1 = Strongly Disagree = SD
2 = Disagree = D
3 = Neutral or Don't Know = N
4 = Agree = A
5 = Strongly Agree = SA

| | SD | D | N | A | SA | For Office Use Only |
|---|---|---|---|---|---|---|
| **Entering the Trades** | | | | | | 2 |
| 1. The general public's perception of women in non-traditional trades is generally positive. | 1 | 2 | 3 | 4 | 5 | 5 |
| 2. Increasingly more women find their choices of work among the trades. | 1 | 2 | 3 | 4 | 5 | 6 |
| 3. Recent anti-stereotypical education to promote women in "non- traditional jobs" has strengthened women's confidence to do "trade" jobs. | 1 | 2 | 3 | 4 | 5 | 7 |
| 4. I decided to get a skilled job because there was no future in what I was doing before. | 1 | 2 | 3 | 4 | 5 | 8 |
| **Experiences - On-the-job** | | | | | | |
| 5. I feel like the token woman; the only reason I was hired was because the company had to hire a woman. | 1 | 2 | 3 | 4 | 5 | 9 |
| 6. The toughness of the "male workplace" atmosphere makes working in the trades for women overwhelming, problematic, and intimidating. | 1 | 2 | 3 | 4 | 5 | 10 |
| 7. Other male apprentices' perceptions toward women in non-traditional trades is generally positive. | 1 | 2 | 3 | 4 | 5 | 11 |
| 8. Foremen and Supervisors in the trades generally seem agreeable in the sharing of their supervisory roles with those women who are proficient in their chosen trade. | 1 | 2 | 3 | 4 | 5 | 12 |

240

| | SD | D | N | A | SA | For Office Use Only |
|---|---|---|---|---|---|---|
| 9. Quality of supervision and treatment of both male and female tradespersons in my place of work is about the same. | 1 | 2 | 3 | 4 | 5 | 13 |
| 10. On the whole, my work environment/ climate does not bother me. | 1 | 2 | 3 | 4 | 5 | 14 |
| 11. On the whole, noise, dirt/pollution, does not bother me. | 1 | 2 | 3 | 4 | 5 | 15 |
| 12. Physical work conditions such as heavy lifting and heavy load carrying is expected from both male and female tradespersons. | 1 | 2 | 3 | 4 | 5 | 16 |
| 13. Sexist language, including jokes, is acceptable in trade work, where the majority of workers are men. | 1 | 2 | 3 | 4 | 5 | 17 |
| 14. Feedback on work progress is frequently given and discussed. | 1 | 2 | 3 | 4 | 5 | 18 |
| 15. Feelings of work pride and self-worth are encouraged in my work place. | 1 | 2 | 3 | 4 | 5 | 19 |
| 16. My sense of accomplishment for work well done is an important part of my work in my chosen trade. | 1 | 2 | 3 | 4 | 5 | 20 |
| 17. I feel comfortable with the level of respect that I perceive from others. | 1 | 2 | 3 | 4 | 5 | 21 |
| 18. I've done things I never considered possible before and it has changed my self-concept. | 1 | 2 | 3 | 4 | 5 | 22 |
| **Possible Obstacles toward Job Completion** | | | | | | |
| 19. As an apprentice, it's o.k. to make mistakes, because you're there to learn. | 1 | 2 | 3 | 4 | 5 | 23 |
| 20. Trade work is mentally/physically too tough for women. | 1 | 2 | 3 | 4 | 5 | 24 |
| 21. I find that access to union information for women in non- traditional trades and invitation to membership are readily available. | 1 | 2 | 3 | 4 | 5 | 25 |
| 22. Access to Day Care and subsidization information about Day Care is available to me. | 1 | 2 | 3 | 4 | 5 | 26 |

PLEASE TURN THE PAGE

| | SD | D | N | A | SA | For Office Use Only |
|---|---|---|---|---|---|---|
| 23. Maternity leave for women in non-traditional trades is no problem. | 1 | 2 | 3 | 4 | 5 | 27 |
| 24. Finding transportation to work is not an obstacle for me. | 1 | 2 | 3 | 4 | 5 | 28 |
| 25. Finding transportation to school is not an obstacle for me. | 1 | 2 | 3 | 4 | 5 | 29 |
| **In General** | | | | | | |
| 26. I did not have any difficulty with the Math/ Science courses in Junior and Senior High School. | 1 | 2 | 3 | 4 | 5 | 30 |
| 27. The current rise in unemployment is the strongest obstacle to the movement of women into non-traditional jobs. | 1 | 2 | 3 | 4 | 5 | 31 |
| 28. It would be very helpful to have more communication with other women in the trades. | 1 | 2 | 3 | 4 | 5 | 32 |
| 29. I think that more women will enter the apprenticeship trades in the future. | 1 | 2 | 3 | 4 | 5 | 33 |
| 30. Women bring a new spirit of working together to some of the trades. | 1 | 2 | 3 | 4 | 5 | 34 |

Please use the space below for any additional comments which you may have on barriers to women's participation in the trades (if there is insufficient space, please feel free to use additional paper).

# CONSENT

☐ I agree to participate in this study of female tradespersons. I have completed and mailed the questionnaire. Please complete the next section ONLY if you wish to be interviewed.

☐ This is to indicate that I wish to have my name put on a list of participants who may be interviewed as part of this study of female tradespersons. I understand that if I am chosen, I will be contacted personally by the researchers to arrange a time for the interview. I understand that an audio recording of the interview will be made, and that confidentiality will be maintained by not using my real name or the names of others.

I understand that any taped conversations will be destroyed at the end of the study and that it is my right to discontinue my involvement with this study at any time.

Name_____

Address_____

Telephone_____

Signature: _____

Dated: _____

May 27, 1991

Dear :

In April 1991 we mailed you a questionnaire regarding your choice of career in a trade where women are in the minority. Your name had been randomly selected by Alberta Apprenticeship and Trade Certification.

Although many completed questionnaires have been returned, there are not quite enough for us to draw an accurate picture of women in Alberta apprenticeship trades. That picture is very important because it may affect future programs and policies in the province.

Please take twenty or thirty minutes of your time to fill out the enclosed questionnaire. The information you provide does matter. A stamped addressed envelope has been enclosed for your convenience.

If you have already sent us your completed questionnaire, please accept our thanks again for you cooperation in this study.

Sincerely,

H. Follis
B. Beaune

Heidi Follis
Bob Beaune

# CONTRACT OF APPRENTICESHIP
## APPRENTICESHIP AND INDUSTRY TRAINING ACT

This is a Contract of Apprenticeship between

-AND- ("Apprentice").

The Parties to this Contract of Apprenticeship agree as follows:

1. The Apprentice shall be an apprentice under the Apprenticeship and Industry Training Act in the trade of

("Trade").

2. The Apprentice shall complete the apprenticeship program consisting of the on the job training, formal instruction, and required examinations provided for under the applicable trade regulation and as indicated below and meet any other requirements and conditions indicated below:

| PERIOD OF APPRENTICESHIP PROGRAM | ON THE JOB TRAINING (length) MONTHS | HOURS | FORMAL INSTRUCTION REQUIRED? | EXAMINATIONS REQUIRED? | OTHER REQUIREMENTS AND CONDITIONS |
|---|---|---|---|---|---|
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |

3. Where the Apprentice and an individual, partnership or corporation employing the Apprentice have applied for approval to enter into the apprenticeship program in the trade, the on the job training of the Apprentice is deemed to have begun on

4. The Parties to this Contract of Apprenticeship shall comply with the Apprenticeship and Industry Training Act and Regulations, and the terms and conditions on the front and reverse side of this Contract of Apprenticeship.

On signature by both parties, the terms and conditions on the front and reverse side of this form together form the Contract of Apprenticeship. This Contract of Apprenticeship comes into effect on the date registered by the Executive Director, Apprenticeship and Industry Training.

When contract entered into by an individual, corporation, or partnership

AUTHORIZED SIGNING OFFICER

DATE | WITNESS

APPRENTICE

DATE | WITNESS

***OR***

Where contract entered into under sec. 14 of Apprenticeship Program and Certificate Recognition Regulation

EXECUTIVE DIRECTOR

DATE | WITNESS

***OFFICE USE ONLY:***

Registered by the Executive Director, Apprenticeship and Industry Training on:

EXECUTIVE DIRECTOR | CONTRACT NO. | IDENTIFICATION NO. OF APPRENTICE | CDC

CDE9 91/12 **Please See Reverse (Return THREE copies to the local Career Development Centre)**

SAMPLE

APPENDIX B

IN THIS APPENDIX CAN BE FOUND A LISTING OF

THE 52 DESIGNATED TRADES THAT COME UNDER

THE PURVIEW OF APPRENTICESHIP AND TRADE CERTIFICATION,

ALBERTA CAREER DEVELOPMENT AND EMPLOYMENT

## 52 DESIGNATED APPRENTICESHIP TRADES

| Name of Trade | Description |
|---|---|
| Agricultural Mechanic | Services, repairs, and sets up agricultural machines. |
| Appliance Serviceman | Repairs and services household appliances. |
| Auto Body Mechanic | Repairs and refinishes automobile bodies. |
| Baker | Makes bread, pastries, cookies and cakes. |
| Barber | Cuts, trims, waves, and colours hair; shaves beards, mustaches, etc. |
| Beautician | Cuts, trims, waves, and colours hair; gives facial treatments, etc. |
| Boilermaker | Builds, tests, and repairs air-tight and liquid- tight containers |
| Bricklayer | Lays brick, hollow tile, and concrete block for buildings or other structures. |
| Cabinetmaker | Builds custom or production-type fixtures and furniture of wood and wood substitutes. |
| Carpenter | Works with wood and wood substitutes in the construction of buildings and other structures. |
| Cement Finisher | Places, finishes, cuts, and repairs concrete. |
| Communication Electrician | Installs, services, and repairs telephone equipment and related communication systems. |
| Cook | Prepares food and meals in hotels, restaurants, and institutions. |
| Crane and Hoisting Equipment Operator<br>Boom Truck Operator<br>Mobile Crane Operator<br>Tower Crane Operator | Operates tower cranes, mobile cranes and boom trucks to lift and swing material. |
| Electrical Rewind Mechanic | Repairs and rebuilds electric motors, genrators, transformers, controls, and other electrical equipment. |
| Electrician | Installs, alters, repairs and maintains electrical systems in buildings to supply heat, light, power, controls, and signal or fire alarms. |
| Electronic Technician | Services and repairs radio and television-receiving equipment. |

52 DESIGNATED APPRENTICESHIP TRADES (cont'd)

| Name of Trade | Description |
|---|---|
| Floorcovering Mechanic | Installs many types of resilient and carpet floor coverings in buildings. |
| Gasfitter | Installs piping, appliances, equipment, and controls for the use of natural gas or propane gas as a fuel. |
| Glassworker | Cuts and installs glass for windows, showcases, and curtain-wall building construction. |
| Heavy Duty Mechanic | Services and repairs construction and other heavy industrial mobile and stationary equipment. |
| Instrument Mechanic | Maintains, services, repairs, and installs measuring and control instruments used in process industries. |
| Insulator | Installs insulation materials in commercial and industrial structures. |
| Ironworker | Builds, erects, constructs, and joins structural steel on buildings, bridges, and towers. |
| Landscape Gardener | Grows, installs, and maintains trees, plants and grasses in all environments. |
| Lather-Interior Systems Mechanic | Installs metal, plaster lath, and interior finishes in the construction of buildings. |
| Machinist | Works with metals; operates metal-cutting and shaping machinery. |
| Millwright | Installs and maintains machinery in factories and other production plants. |
| Motorcycle Mechanic | Assembles, services, and repairs two- wheeled single-tracked motor vehicles. |
| Motor Mechanic | Services and repairs automobiles. |
| Painter and Decorator | Applies paint, varnish, and wallpaper to interior and exterior building surfaces, and to other fittings and furnishings. |
| Partsman | Stores and dispenses automotive, heavy duty, or farm machinery parts. |
| Plumber | Installs piping, fixtures, appliances, equipment, and controls for water and sanitation purposes. |
| Power Lineman | Constructs, maintains, or operates electrical transmission or distribution systems. |
| Power System Electrician | Constructs or maintains electrical utility power system and power station equipment, or metering, protection, and control apparatus. |
| Printing and Graphic Arts Craftsman | Prepares, produces, and finishes printed material. |

52 DESIGNATED APPRENTICESHIP TRADES (cont'd)

| Name of Trade | Description |
|---|---|
| Recreation Vehicle Mechanic | Repairs mobile motor homes and recreation vehicles. |
| Refrigeration Mechanic | Installs and services refrigerating and air conditioning systems. |
| Roofer | Installs and maintains built-up roofs, composition roof coverings, shakes, shingles, and plastic membranes. |
| Sawfiler | Repairs, sets, and sharpens band saws, chain saws, hand saws, circular saws, and other types of saw blades. |
| Sheet Metal Worker | Designs, fabricates, installs, and repairs ducts and fittings for heating, ventilating, air conditioning, exhaust, and dust collecting systems. |
| Sprinkler Systems Installer | Installs and maintains fixed fire extinguishing systems. |
| Steamfitter-Pipefitter | Installs piping, equipment and controls for hot water, drain, process, and chemical piping in industrial and commercial establishments. |
| Steel Fabricator | Works in the shop fabrication, preparation, layout, assembly, or repair of structural and miscellaneous components. |
| Tooland Die Maker | Manufactures and repairs jigs, fixtures, gauges, dies, molds, press tools, and various types of small mechanical devices. |
| Transport Refrigeration Mechanic | Installs, repairs, and maintains equipment in mobile units used to haul perishable loads. |
| Water Well Driller | Drills, installs and services water wells and installs and services water well pumping systems. |
| Welder | Joins metal by fusion using oxyacetylene flame, electric arc, or other welding processes. |

APPENDIX C

THE 17 PROFICIENCY TRADES THAT ARE THE RESPONSIBILITY OF APPRENTICESHIP AND TRADE CERTIFICATION CAN BE FOUND IN THIS APPENDIX

## PROFICIENCY TRADES

| Name of Trade | Description |
|---|---|
| Auto Body Mechanic | Repairs and refinishes automobile bodies. |
| Barber | Cuts, trims, waves, and colours hair, shaves beards, mustaches, etc. |
| Beautician | Cuts, trims, waves, and colours hair, gives facial treatments, etc. |
| | Crane and HoistingOperates tower cranes, mobile cranes and boom trucks to lift and swing material. |
| Electrician | Installs, alters, repairs, and maintains electrical systems in buildings to supply heat, light, power, controls, and signal or fire alarms. |
| Electronic Technician | Services and repairs radio and television-receiving equipment. |
| Elevator Constructor | Installs, repairs and maintains elevators, escalators, moving walkways, etc. |
| Gasfitter | Installs piping, appliances, equipment, and controls for the use of natural gas or propane gas as a fuel. |
| Heavy Duty Mechanic | Services and repairs construction and other heavy industrial mobile and stationary equipment. |
| Motorcycle Mechanic | Assembles, services, and repairs two- wheeled single-tracked motor vehicles. |
| Motor Mechanic | Services and repairs automobiles. |
| Plumber | Installs piping, fixtures, appliances, equipment, and controls for water and sanitation purposes. |
| Recreation Vehicle Mechanic | Repairs motor homes and recreation vehicles. |
| Refrigeration Mechanic | Installs and services refrigerating and air conditioning systems. |
| Sheet Metal Worker | Designs, fabricates, installs, and repairs ducts and fittings for heating, ventilating, air conditioning, exhaust and dust collecting systems. |
| Steamfitter-Pipefitter | Installs piping, equipment and controls for hot water, drain, process, and chemical piping in industrial and commercial establishments. |
| Welder | Joins metal by fusion using oxyacetylene flame, electric arc, or other welding processes. |

APPENDIX D

THE 22 APPRENTICEABLE TRADES THAT HAVE BEEN RECOGNIZED BY THE INTERPROVINCIAL STANDARDS PROGRAM AS RED SEAL TRADES ARE LISTED IN THIS APPENDIX.

FOR A MORE DETAILED EXPLANATION OF THIS PROGRAM, SEE PAGE 45.

## RED SEAL TRADES

| Name of Trade | Description |
|---|---|
| Auto Body Mechanic | Repairs and refinishes automobile bodies. |
| Beautician | Cuts, trims, waves, and colours hair; gives facial treatments, etc. |
| Boilermaker | Builds, tests, and repairs air-tight and liquid- tight containers |
| Bricklayer | Lays brick, hollow tile, and concrete block for buildings or other structures. |
| Carpenter | Works with wood and wood substitutes in the construction of buildings and other structures. |
| Cook | Prepares food and meals in hotels, restaurants, and institutions. |
| Electrician | Installs, alters, repairs and maintains electrical systems in buildings to supply heat, light, power, controls, and signal or fire alarms. |
| Electronic Technician | Services and repairs radio and television-receiving equipment. |
| Heavy Duty Mechanic | Services and repairs construction and other heavy industrial mobile and stationary equipment. |
| Instrument Mechanic | Maintains, services, repairs, and installs measuring and control instruments used in process industries. |
| Machinist | Works with metals; operates metal-cutting and shaping machinery. |
| Millwright | Installs and maintains machinery in factories and other production plants. |
| Motorcycle Mechanic | Assembles, services, and repairs two- wheeled single-tracked motor vehicles. |
| Painter and Decorator | Applies paint, varnish, and wallpaper to interior and exterior building surfaces, and to other fittings and furnishings. |
| Plumber | Installs piping, fixtures, appliances, equipment, and controls for water and sanitation purposes. |
| Power Lineman | Constructs, maintains, or operates electrical transmission or distribution systems. |
| Refrigeration Mechanic | Installs and services refrigerating and air conditioning systems. |
| Roofer | Installs and maintains built-up roofs, composition roof coverings, shakes, shingles, and plastic membranes. |
| Sheet Metal Worker | Designs, fabricates, installs, and repairs ducts and fittings for heating, ventilating, air conditioning, exhaust, and dust collecting systems. |
| Sprinkler Systems Installer | Installs and maintains fixed fire extinguishing systems. |
| Steamfitter-Pipefitter | Installs piping, equipment and controls for hot water, drain, process, and chemical piping in industrial and commercial establishments. |
| Welder | Joins metal by fusion using oxyacetylene flame, electric arc, or other welding processes. |

# CURRICULUM VITAE

## Heidi Graul-Follis

| | |
|---|---|
| Birthdate | April 29, 1942, Schomberg, Germany |

## Education

| | |
|---|---|
| 1992 | **M.Ed.**<br>University of Alberta |
| 1979 | **B.A.**<br>Laurentian University |

- Teacher Certificate
- Permanent Professional Certificate

## Positions

| | |
|---|---|
| 1989 - 1992 | Independent Contract Consultant to Private and Public Sectors |
| 1982 - 1989 | **Editor & Marketing**<br>Management: Education Publications |
| 1988 - 1989 | **Research Officer**<br>Alberta Education |
| 1987 - 1989 | **University Research Assistant**<br>Department of Adult, Career and Technology Education<br>Faculty of Extension |
| 1974 - 1981 | **Teacher**<br>ESL, Elementary/Junior/Senior High School, Ontario |

## Memberships

- Phi Delta Kappa (University Chapter)
- Women's Legal Education & Action Fund (Edmonton chapter)
- Canadian Information Processing Society (CIPS Edmonton)
- FWTAO - Federation of Women Teachers Association of Ontario

## Publications

Collaborative non-published manuscript:
History of Technical Vocational Institutes in Canada

Editor, published booklet (by Dr. Robert E. Taylor)
Directions and Strategies for Vocational Education: A Distinguished Educator's Perspective for the Future